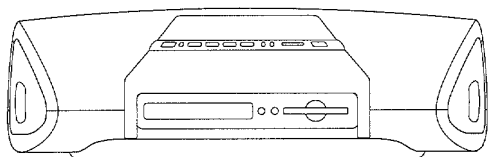


# aiwa



## CSD-MD5



MD/CD STEREO  
RADIO RECEIVER

- BASIC MD MECHANISM: 7ZG-9YA1
- BASIC CD MECHANISM: 3ZG-3YE1NM

- TYPE: HE

# SERVICE MANUAL

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## SPECIFICATIONS

### FM tuner section

<b>Tuning range</b>	87.5 - 108.0 MHz
<b>Antenna</b>	Rod antenna

### AM tuner section

<b>Tuning range</b>	531 kHz - 1,602 kHz (9 kHz) 530 kHz - 1,710 kHz (10 kHz)
<b>Antenna</b>	Loop antenna

### CD player section


<b>Scanning method</b>	Non-contact optical scanner (semiconductor laser)
<b>Frequency</b>	40 Hz - 20,000 Hz $\pm 2$ dB
<b>D/A converter</b>	1 bit dual

### MD recorder section

<b>Scanning method</b>	Non-contact optical scanner (semiconductor laser)
<b>Recording system</b>	Magnetic polarity modulation overwrite system
<b>Rotation speed</b>	Approx. 400 - 900 rpm (CLV)
<b>Sampling frequency</b>	44.1 kHz
<b>No. of channels</b>	Stereo: 2 channels Monaural: 1 channel
<b>A-D, D-A converter</b>	1 bit
<b>Frequency</b>	20 Hz - 20,000 Hz $\pm 0.5$ dB
<b>Wow and flutter</b>	Unmeasurable

### General

<b>Speakers</b>	80 mm cone type (2)
<b>Output</b>	Headphones jack (stereo mini-jack)
<b>Power output</b>	8 W + 8 W (10% T.H.D./6 $\Omega$ ) 5.6 W + 5.6 W (DIN 1% Rated Power)
<b>Power requirements</b>	AC 110 - 120 V/220 - 240 V switchable, 50/60 Hz
<b>Power consumption</b>	41 W
<b>Dimensions</b>	538 (W) $\times$ 173 (H) $\times$ 250 (D) mm
<b>Weight</b>	Approx. 5.7 kg

- Design and specifications are subject to change without notice.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

## ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

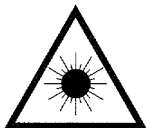
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	88-CD2-907-010		IB, HE (EC)
2	86-CD0-951-010		RC UNIT, RC-6AT05
3	87-006-240-010		AM LOOP ANT CON (KO)
4	87-099-789-010		PLUG, ADPTR IR44
5	87-A80-081-010		AC CORD SET ASSY, EZ BLK

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

### VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylitävälle näkymättömälle lasersäteilylle.

### VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstråling, som överskrider gränsen för laserklass 1.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

### ATTENTION

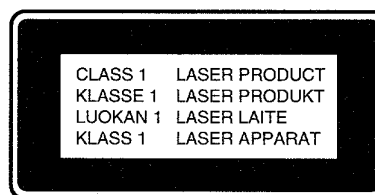
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

### ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

The CLASS 1 LASER PRODUCT label is located on the rear exterior.

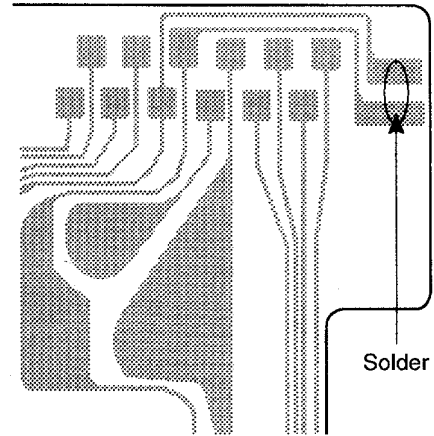


### Precaution to replace Optical block (KSS-213F)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in the right figure.

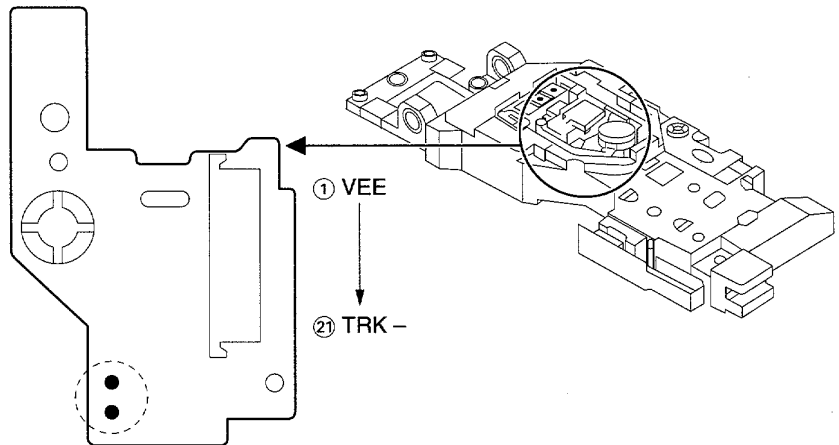
PICK-UP Assy P.C.B



### Precaution to replace Optical block (KMS-260A)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in the right figure.



## DISASSEMBLY INSTRUCTIONS

1. Remove the four screws (A) (S-SCREW, MD) and screws (B) (BVT +3-6).  
Remove the four FFCs from the connector, and remove the MD MECHANISM in the direction of the arrow. (Fig-1)

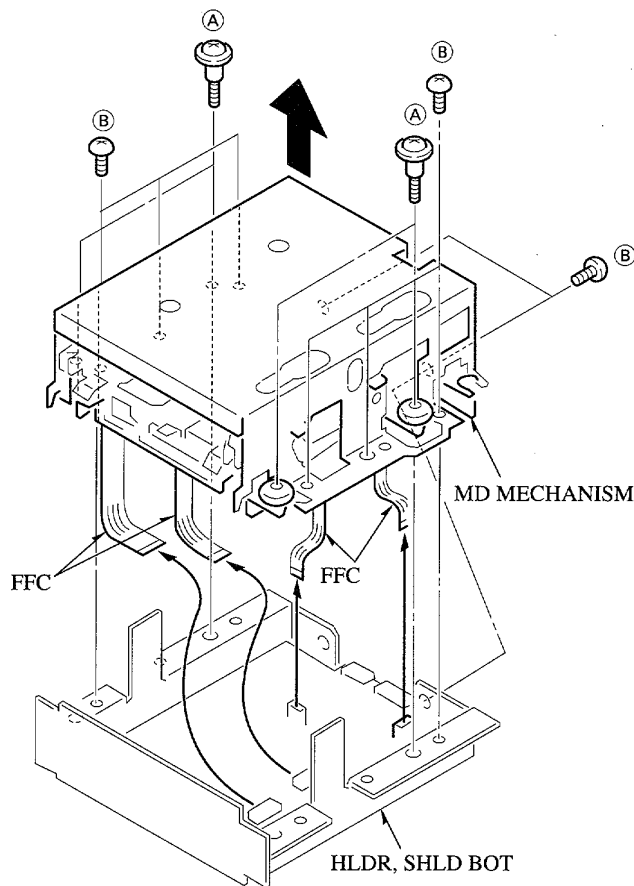


Fig-1

2. Remove the HLDR and SHLD TOP in the direction of the arrow. (Fig-2)

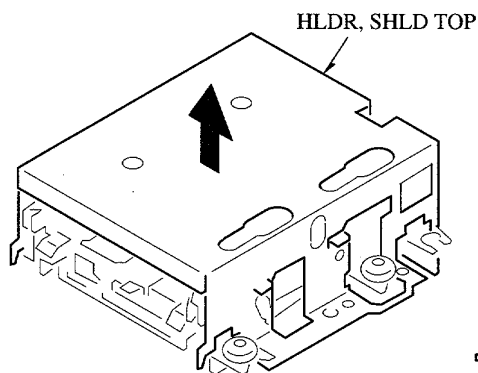


Fig-2

3. Remove the two screws (C) (VTT +2-4), and remove the PLATE ASSY, SIDE L, PLATE, and SIDE R in the direction of the arrow.  
Remove the screw (D) (VW +1.7-5 w/o MFZN2C), and remove the HEAD and OWH RF325-74A in the direction of the arrow. (Fig-3)

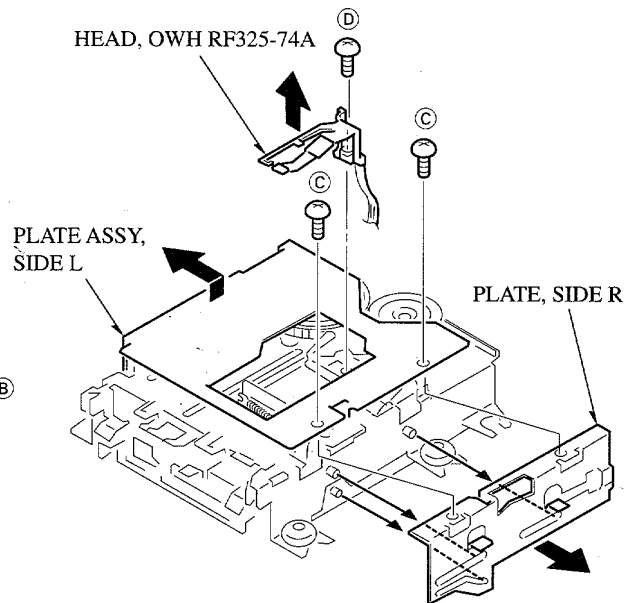


Fig-3

4. Open the 7ZG-3 A1 in the direction of the arrow (a), remove the BOSS by pressing it gently in the direction of the arrow (b), and remove the 7ZG-3 A1 in the direction of the arrow (c). (Fig-4)

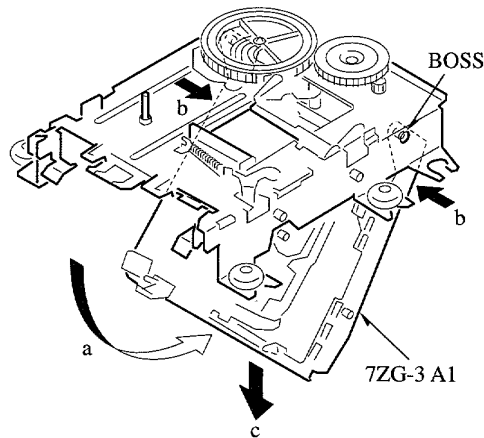


Fig-4

### Note During Assembling:

Rotate the gear fully in the direction of the arrow, and assemble the main cam into the specified position as shown by the illustration. (Fig-5)

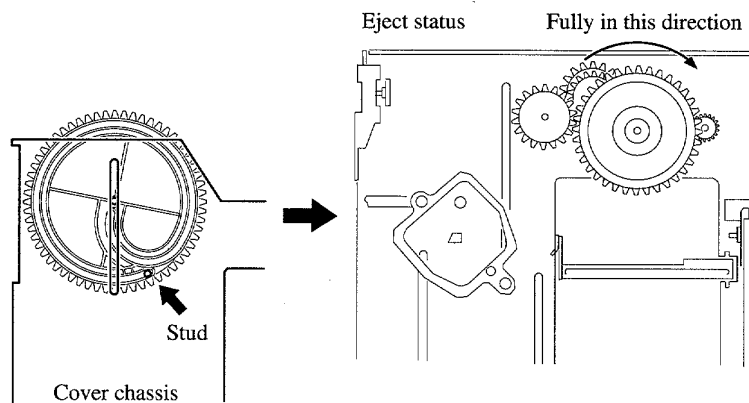
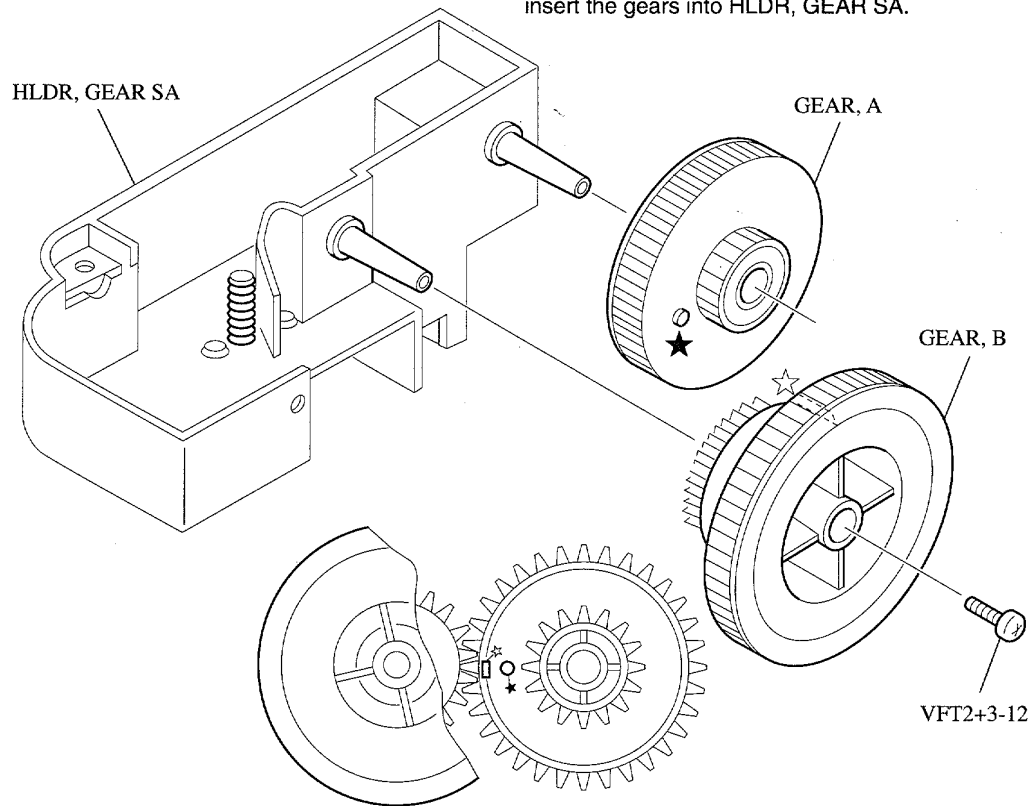


Fig-5

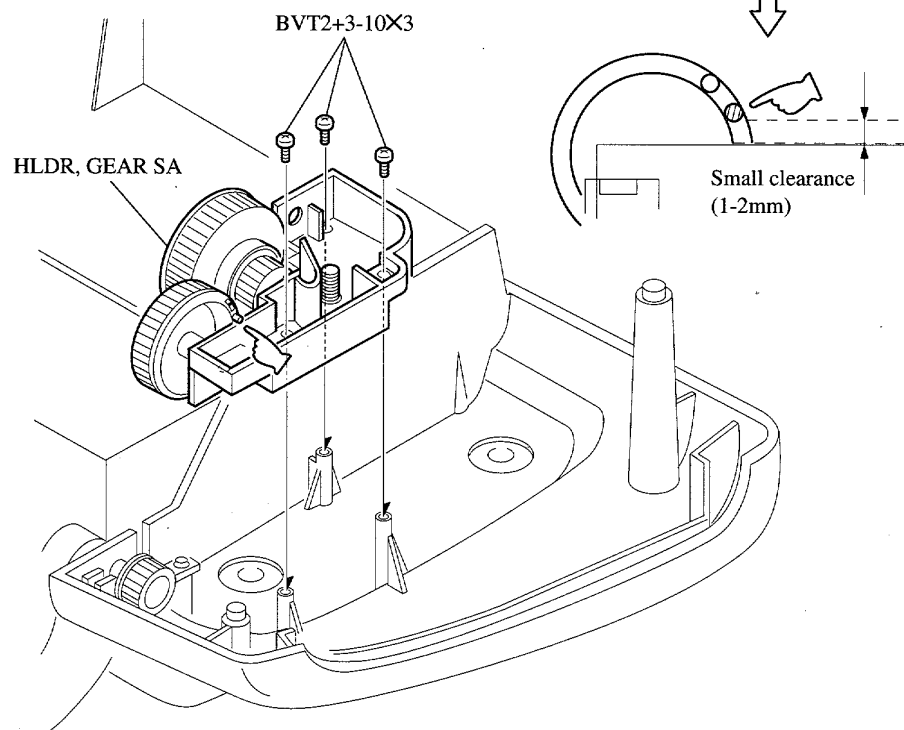
## CAUTION WHEN SERVICING

Adjust the phase of the gears as indicated below when reassembling the control panel.

- Assemble the GEAR, A and GEAR, B so that ○ (the black star mark ★) of the GEAR, A meets □ (the white star mark ☆) of the GEAR, B, and insert the gears into HLDR, GEAR SA.



- MD PANEL: Open it fully



# ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC	87-A20-987-010	IC,BA17806T		87-A40-470-080	DIODE,1SS254		
	87-A20-988-010	IC,BA10T		87-001-166-080	DIODE,1SS301		
	87-A20-909-010	IC,LA4663		87-A40-412-040	C-DIODE,SB05-05CP		
	87-A20-891-010	IC,MM1354BD		87-A40-534-080	ZENER,MTZJ39A		
	87-A20-803-010	IC,M5228P					
	87-A20-715-010	IC,M62439SP		MAIN C.B			
	88-CD2-636-010	C-IC,LC866560W-5H87		C100	87-018-205-080	CAP, CERA-SOL 0.022	
	87-A20-991-080	IC,PST9127		C101	87-018-205-080	CAP, CERA-SOL 0.022	
	87-A20-911-010	IC,RPM6938		C102	87-018-205-080	CAP, CERA-SOL 0.022	
	87-A20-976-040	C-IC,TC74HCT7007AF		C103	87-018-205-080	CAP, CERA-SOL 0.022	
	87-070-289-040	IC,BU 2092F		C104	87-A10-945-090	CAP E 6800-25V M 105	
	87-A20-446-010	C-IC,LA9241ML		C105	87-010-196-080	CHIP CAPACITOR,0.1-25	
	87-A20-187-010	IC,LC78622E		C106	87-010-198-080	CAP, CHIP 0.022	
	87-A20-445-010	IC,BA5936		C107	87-010-387-080	CAP,E 470-25 SME	
	86-NFZ-655-010	IC,LC72131D(Z)		C108	87-010-780-490	CAP E 6800-25V	
	87-A20-913-010	IC,LA1837NL		C109	87-010-237-080	CAP, ELECT 1000-16V	
	87-A20-707-010	C-IC,CXA2523AR		C110	87-010-196-080	CHIP CAPACITOR,0.1-25	
	87-A20-708-010	C-IC,CXD2652AR		C112	87-A10-944-080	CAP, ELECT 100-100V SMG	
	87-A20-709-040	C-IC,BD7910FV		C113	87-018-134-080	CAPACITOR,TC-U 0.01-16	
	87-017-920-040	IC,MM51W4400BS/BLS78		C114	87-010-403-080	CAP, ELECT 3.3-50V	
	87-A20-755-080	C-IC,AK93C45AF		C115	87-010-198-080	CAP, CHIP 0.022	
TRANSISTOR	87-A20-710-040	C-IC,S-8110AMP		C116	87-018-205-080	CAP, CERA-SOL 0.022	
	87-A20-711-040	C-IC,BA5970FP		C117	87-010-198-080	CAP, CHIP 0.022	
	87-A20-712-040	C-IC,BA6417F		C121	87-010-618-010	CAP,E2200-16 M	
	87-A20-698-080	C-IC,AK4512VF		C122	87-010-196-080	CHIP CAPACITOR,0.1-25	
	87-017-853-040	IC,NJM2100V		C123	87-010-196-080	CHIP CAPACITOR,0.1-25	
	87-A20-797-040	C-IC,NJU7221U30		C150	87-010-406-080	CAP, ELECT 22-50	
	87-A20-798-040	C-IC,NJU7221U35		C152	87-012-358-080	C-CAP,S 0.47-10 F Z	
	87-A20-714-040	C-IC,NJM2370U33		C153	87-012-141-080	CHIP-CAPACITOR,0.22-16F	
				C160	87-010-196-080	CHIP CAPACITOR,0.1-25	
				C200	87-010-406-080	CAP, ELECT 22-50	
	89-213-750-010	TR,2SB1375 (25W)		C201	87-010-406-080	CAP, ELECT 22-50	
	87-026-230-080	CHIP-TR,DTA114YK		C202	87-010-406-080	CAP, ELECT 22-50	
	87-026-213-080	CHIP-TR,DTC114YK		C203	87-010-406-080	CAP, ELECT 22-50	
	89-318-154-080	TR,2SC1815 (0.4W)		C206	87-010-387-080	CAP,E 470-25 SME	
	89-113-187-080	TR,2SA1318TU		C207	87-010-197-080	CAP, CHIP 0.01 DM	
	89-327-124-080	TR,2SC2712Y,SI (150MHZ)		C210	87-010-260-080	CAP, ELECT 47-25V	
	89-111-624-080	TR,2SA1162Y		C211	87-010-401-080	CAP, ELECT 1-50V	
	87-A30-121-080	TR,DTC 323 TS		C212	87-010-401-080	CAP, ELECT 1-50V	
	87-A30-071-089	C-TR,RT1N144C		C213	87-010-260-080	CAP, ELECT 47-25V	
	87-A30-076-089	C-TR,2SC3052F		C214	87-010-182-080	C-CAP,S 2200P-50 B	
DIODE	87-026-263-080	C-TR,RN1410		C215	87-010-182-080	C-CAP,S 2200P-50 B	
	87-026-587-080	C-TR RN2401		C216	87-010-404-080	CAP, ELECT 4.7-50V	
	87-026-463-080	TR,2SA933S (0.3W)		C217	87-010-404-080	CAP, ELECT 4.7-50V	
	87-026-609-080	TR,KTA1266GR		C218	87-010-182-080	C-CAP,S 2200P-50 B	
	87-026-237-080	CHIP-TR,DTC124XK		C219	87-010-182-080	C-CAP,S 2200P-50 B	
	87-A30-196-080	TR,2SC4115SRS		C220	87-010-401-080	CAP, ELECT 1-50V	
	89-327-143-080	TR,2SC2714 (0.1W)		C225	87-010-263-080	CAP, ELECT 100-10V	
	87-A30-072-080	C-TR,RT1P 144C		C226	87-010-384-080	CAP, ELECT 100-25V	
	87-026-226-080	CHIP-TR,DTA143EK		C227	87-010-405-080	CAP, ELECT 10-50V	
	87-026-423-080	C-TR RN2305		C229	87-010-405-080	CAP, ELECT 10-50V	
	89-115-884-080	CHIP-TRANSISTOR,2SA1588Y		C230	87-010-405-080	CAP, ELECT 10-50V	
	89-341-164-080	CHIP-TRANSISTOR,2SC4116Y		C231	87-010-404-080	CAP, ELECT 4.7-50V	
	87-026-412-080	C-TR RN1305		C232	87-010-404-080	CAP, ELECT 4.7-50V	
				C233	87-010-405-080	CAP, ELECT 10-50V	
				C234	87-010-405-080	CAP, ELECT 10-50V	
	87-017-447-010	DIODE,GBU4DL		C235	87-010-404-080	CAP, ELECT 4.7-50V	
	87-A40-533-080	ZENER,MTZJ8.2B		C236	87-010-404-080	CAP, ELECT 4.7-50V	
	87-070-345-080	DIODE,IN4148		C237	87-010-248-080	CAP, ELECT 220-10V	
	87-017-978-080	DIODE,IN4003		C238	87-010-248-080	CAP, ELECT 220-10V	
	87-A40-488-080	DIODE,1SS244		C239	87-010-322-080	C-CAP,S 100P-50 CH	
	87-A40-002-080	ZENER,MTZJ5.1C		C246	87-010-404-080	CAP, ELECT 4.7-50V	
	87-A40-539-080	ZENER,MTZJ2.4A		C248	87-010-404-080	CAP, ELECT 4.7-50V	
	87-020-339-080	CHIP DIODE,1SS226		C294	87-012-155-080	C-CAP,S 180P-50J CH GRM	
	87-020-465-080	DIODE,1SS133 (110MA)<U>		C295	87-012-155-080	C-CAP,S 180P-50J CH GRM	
	87-A40-234-080	ZENER,MTZJ5.6A		C297	87-010-178-080	CHIP CAP 1000P	
				C298	87-010-178-080	CHIP CAP 1000P	
				C299	87-010-178-080	CHIP CAP 1000P	



REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C500	87-010-382-080		CAP, ELECT 22-25V	AF102	87-035-192-010		FUSE,4AT
C501	87-010-401-080		CAP, ELECT 1-50V	FB101	87-008-327-080		FLTR,EMI BLO1 RN1
C502	87-010-546-080		CAP, ELECT 0.33-50V	FB105	87-008-327-080		FLTR,EMI BLO1 RN1
C503	87-010-178-080		CHIP CAP 1000P	FC101	87-A90-505-080		FUSE CLAMP,TP00351-51
C509	87-010-180-080		C-CER 1500P	FC102	87-A90-505-080		FUSE CLAMP,TP00351-51
C510	87-010-374-080		CAP, ELECT 47-10V	FC103	87-A90-505-080		FUSE CLAMP,TP00351-51
C511	87-010-197-080		CAP, CHIP 0.01 DM	FC104	87-A90-505-080		FUSE CLAMP,TP00351-51
C512	87-010-248-080		CAP, ELECT 220-10V	J201	87-A60-420-010		JACK,3.5 ST (MSC)
C514	87-010-401-080		CAP, ELECT 1-50V	L63	87-003-098-080		COIL,2.2UH
C515	87-018-205-080		CAP, CERA-SOL 0.022	L78	87-003-102-080		COIL,10UH
C516	87-010-263-080		CAP, ELECT 100-10V	L503	87-003-102-080		COIL,10UH
C517	87-010-197-080		CAP, CHIP 0.01 DM	L504	87-003-102-080		COIL,10UH
C518	87-010-405-080		CAP, ELECT 10-50V	L507	87-003-102-080		COIL,10UH
C519	87-010-263-080		CAP, ELECT 100-10V	L509	87-003-102-080		COIL,10UH
C520	87-010-197-080		CAP, CHIP 0.01 DM	X501	87-A70-166-080		CERALOCK 16.93MHZ
C521	87-010-374-080		CAP, ELECT 47-10V	S200	87-A90-376-080		SW,TACT SKHVLH
C523	87-010-176-080		C-CAP,S 680P-50 SL				
C525	87-010-178-080		CHIP CAP 1000P				
C526	87-010-545-080		CAP,E 0.22-50V				
C527	87-012-140-080		CAP 470P				
C530	87-010-406-080		CAP, ELECT 22-50				
C531	87-010-403-080		CAP, ELECT 3.3-50V				
C532	87-010-186-080		CAP,CHIP 4700P				
C533	87-010-196-080		CHIP CAPACITOR,0.1-25				
C534	87-010-221-080		CAP, ELECT 470-10V				
C545	87-010-404-080		CAP, ELECT 4.7-50V				
C547	87-010-178-080		CHIP CAP 1000P				
C548	87-010-145-080		C-CAP,S 3P-50 CH				
C549	87-018-150-080		CAP,TC-U 18P-50 CH				
C552	87-010-196-080		CHIP CAPACITOR,0.1-25				
C554	87-018-121-080		CAP, CER 150P-50V				
C555	87-018-209-080		CAP, CER 0.1-50V				
C556	87-010-248-080		CAP, ELECT 220-10V				
C557	87-010-405-080		CAP, ELECT 10-50V				
C558	87-010-405-080		CAP, ELECT 10-50V				
C559	87-010-196-080		CHIP CAPACITOR,0.1-25				
C560	87-010-196-080		CHIP CAPACITOR,0.1-25				
C561	87-010-263-080		CAP, ELECT 100-10V				
C562	87-010-314-080		C-CAP,S 22P-50V				
C563	87-010-314-080		C-CAP,S 22P-50V				
C564	87-010-404-080		CAP, ELECT 4.7-50V				
C565	87-010-196-080		CHIP CAPACITOR,0.1-25				
C570	87-010-196-080		CHIP CAPACITOR,0.1-25				
C571	87-010-196-080		CHIP CAPACITOR,0.1-25				
C572	87-010-196-080		CHIP CAPACITOR,0.1-25				
C573	87-010-196-080		CHIP CAPACITOR,0.1-25				
C574	87-010-405-080		CAP, ELECT 10-50V				
C575	87-010-405-080		CAP, ELECT 10-50V				
C576	87-010-196-080		CHIP CAPACITOR,0.1-25				
C577	87-A10-096-080		CAP,E 1000-16				
C578	87-010-196-080		CHIP CAPACITOR,0.1-25				
C579	87-010-196-080		CHIP CAPACITOR,0.1-25				
C580	87-018-134-080		CAP,TC U 0.01-16 NY<U>				
C585	87-012-140-080		CAP 470P				
C599	87-018-131-080		CAP,CER 1000P-50V				
CN101	87-099-408-010		CONN,8P EH V WHT				
CN201	87-A60-482-010		CONN,4P V 5267-04A-X				
CN203	87-A60-423-010		CONN,14P V TOC-B				
CN204	87-A60-632-010		CONN,15P V 2MM JMT				
CN205	87-A60-690-010		CONN,15P V BLK 2MMJMT				
CN207	87-099-013-010		CONN,11P 6216 V				
CN208	87-A60-668-010		CONN,4P H 2MM JMT				
CN209	81-754-629-010		CONNECTOR, 2P				
CN210	87-A60-624-010		CONN,7P V 2MM JMT				
CN211	87-A60-422-010		CONN,8P V TOC-B				
CN500	87-A60-424-010		CONN,16P V TOC-B				
CN501	87-A60-061-010		CONN,06P V 9604S-06C				
CN502	87-A60-062-010		CONN,05P V 9604S-05C				
CN503	87-A60-622-010		CONN,5P V 2MM JMT				
AF101	87-035-190-010		FUSE,2AT				

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
CN302	87-009-350-010		CONN, 7P PH H	C770	87-010-829-080		CAP, U 0.047-16
CN304	87-009-345-010		CONN, 2P PH H	C771	87-010-407-080		CAP, ELECT 33-50V
FB301	87-006-164-080		F-BEAD, 2125 CB50	C772	87-010-829-080		CAP, U 0.047-16
FB302	87-003-219-010		F-BEAD, BL02	C773	87-010-196-080		CHIP CAPACITOR, 0.1-25
FB303	87-006-164-080		F-BEAD, 2125 CB50	C774	87-010-263-080		CAP, ELECT 100-10V
FL301	88-CD2-600-010		FL, 16-ST-23GK	C775	87-010-404-080		CAP, ELECT 4.7-50V
L301	87-005-734-080		COIL, 22UH J SP02	C776	87-012-286-080		CAP, U 0.01-25
L302	87-003-050-080		COIL, 47UH	C777	87-010-400-080		CAP, ELECT 0.47-50
L304	87-003-102-080		COIL, 10UH	C778	87-010-401-080		CAP, ELECT 1-50V
L306	87-003-102-080		COIL, 10UH	C779	87-010-401-080		CAP, ELECT 1-50V
L335	87-003-102-080		COIL, 10UH	C780	87-010-196-080		CHIP CAPACITOR, 0.1-25
LED301	87-A40-526-010		LED, TLGD262 (LM) GRN	C781	87-010-405-080		CAP, ELECT 10-50V
LED302	87-A40-526-010		LED, TLGD262 (LM) GRN	C782	87-010-405-080		CAP, ELECT 10-50V
LED303	87-A40-526-080		LED, TLGD262 (LM) GRN	C783	87-012-286-080		CAP, U 0.01-25
LED304	87-A40-526-080		LED, TLGD262 (LM) GRN	C784	87-012-286-080		CAP, U 0.01-25
S301	87-036-170-080		TACT SWITCH	C785	87-010-805-080		CAP, S 1-16
S302	87-036-170-080		TACT SWITCH	C786	87-010-805-080		CAP, S 1-16
S303	87-036-170-080		TACT SWITCH	C787	87-012-280-080		CAP, U 3300P-50
S304	87-036-170-080		TACT SWITCH	C788	87-012-280-080		CAP, U 3300P-50
S305	87-036-170-080		TACT SWITCH	C789	87-012-275-080		C-CAP, U 1200P-50 B
S306	87-036-170-080		TACT SWITCH	C790	87-012-275-080		C-CAP, U 1200P-50 B
S307	87-036-170-080		TACT SWITCH	C791	87-010-405-080		CAP, ELECT 10-50V
S308	87-036-170-080		TACT SWITCH	C793	87-012-273-080		C-CAP, U 820P-50 B
S309	87-036-170-080		TACT SWITCH	C794	87-010-406-080		CAP, ELECT 22-50
S310	87-036-170-080		TACT SWITCH	C795	87-010-596-080		CAP, S 0.047-16
S311	87-036-170-080		TACT SWITCH	C796	87-010-403-080		CAP, ELECT 3.3-50V
S321	87-036-170-080		TACT SWITCH	C797	87-012-278-080		C-CAP, U 2200P-50 B<U>
S322	87-036-170-080		TACT SWITCH	C797	87-012-276-080		CAP, CHIP SS 1500 PBK<K, EZ>
S323	87-036-170-080		TACT SWITCH	C798	87-012-278-080		C-CAP, U 2200P-50 B<U>
S324	87-036-170-080		TACT SWITCH	C798	87-012-276-080		CAP, CHIP SS 1500 PBK<K, EZ>
S325	87-036-170-080		TACT SWITCH	C799	87-010-829-080		CAP, U 0.047-16
S326	87-036-170-080		TACT SWITCH	C812	87-012-286-080		CAP, U 0.01-25
S327	87-036-170-080		TACT SWITCH	C813	87-010-197-080		CAP, CHIP 0.01 DM
S328	87-036-170-080		TACT SWITCH	C814	87-012-286-080		CAP, U 0.01-25
X301	87-A70-070-080		VIB, CER 5.76MHZ CRHF	C819	87-010-197-080		CAP, CHIP 0.01 DM
X302	87-030-273-010		VIB, XTAL 32.768K5PPM	C820	87-010-408-080		CAP, ELECT 47-50V
TUNER C.B				C821	87-012-286-080		CAP, U 0.01-25
C701	87-010-260-080		CAP, ELECT 47-25V	C822	87-012-286-080		CAP, U 0.01-25
C702	87-010-404-080		CAP, ELECT 4.7-50V	C823	87-012-286-080		CAP, U 0.01-25
C703	87-012-286-080		CAP, U 0.01-25	C828	87-010-196-080		CHIP CAPACITOR, 0.1-25
C704	87-012-286-080		CAP, U 0.01-25	C829	87-010-196-080		CHIP CAPACITOR, 0.1-25
C709	87-012-195-080		C-CAP, U 100P-50CH	C959	87-010-196-080		CHIP CAPACITOR, 0.1-25
C711	87-010-263-080		CAP, ELECT 100-10V	C960	87-010-196-080		CHIP CAPACITOR, 0.1-25
C712	87-010-196-080		CHIP CAPACITOR, 0.1-25	C961	87-012-174-080		CAP CHIP CERA SS 12P CHJ
C713	87-012-286-080		CAP, U 0.01-25	CF801	87-008-423-010		CERAMIC FILTER, SFE10.7<K, EZ>
C714	87-012-286-080		CAP, U 0.01-25	CF801	87-008-261-010		FILTER, SFE10.7MA5-A<U>
C717	87-012-286-080		CAP, U 0.01-25	CF802	82-785-747-010		CF MS2 GHY R<K, EZ>
C719	87-012-286-080		CAP, U 0.01-25	CF802	87-008-261-010		FILTER, SFE10.7MA5-A<U>
C721	87-012-176-010		C-CAP, U 15P-50 J CH	CN601	87-099-028-010		CONN, 11P 6216 H
C722	87-012-176-010		C-CAP, U 15P-50 J CH	FFE801	A8-62A-19D-070		62A-1 YFEJNC
C723	87-012-274-080		CHIP CAP, U 1000P-50B	L771	87-A50-266-010		COIL, FM DET-2N(TOK)
C725	87-012-274-080		CHIP CAP, U 1000P-50B	L772	87-A90-733-010		FLTR, PCFAZH-450 (TOK)
C727	87-010-196-080		CHIP CAPACITOR, 0.1-25	L781	87-005-847-080		COIL, 2.2UH(CECS)
C728	87-010-248-080		CAP, ELECT 220-10V	L832	87-005-847-080		COIL, 2.2UH(CECS)
C729	87-012-274-080		CHIP CAP, U 1000P-50B	L981	87-NF4-650-010		COIL, AM PACK 4N(TOK)
C740	87-012-288-080		C-CAP, U 120P-50 J UJ	VR770	87-024-432-080		SFR, 4.7K RH063EC
C755	87-012-286-080		CAP, U 0.01-25	X721	87-A70-061-010		VIB, XTAL 4.500MHZ CSA-309
C756	87-012-286-080		CAP, U 0.01-25	DRIVE C.B			
C757	87-012-188-010		C-CAP, U 47P-50 J CH	M20	87-045-358-019		MOT, RF-310TA 43
C758	87-012-167-010		C-CAP, U 5P-50 C CH	M21	87-045-356-019		MOT, RF-310TA 30
C761	87-010-196-080		CHIP CAPACITOR, 0.1-25	SW1	87-A90-042-019		SW, LEAF MSW 17310 MVPO
C763	87-010-829-080		CAP, U 0.047-16	CD MOTOR C.B			
C764	87-012-337-080		C-CAP, U 56P-50 CH	M1	87-045-305-019		MOTOR, RF-500TB
C765	87-012-286-080		CAP, U 0.01-25	SW1	87-036-110-019		SW, PUSH SPB 62
C766	87-012-286-080		CAP, U 0.01-25	SW2	87-036-110-019		SW, PUSH SPB 62
C768	87-012-286-080		CAP, U 0.01-25				
C769	87-010-408-080		CAP, ELECT 47-50V				

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
TR C.B			
CONTROL C.B			
C372	87-012-140-080		CAP 470P
C373	87-012-140-080		CAP 470P
C378	87-015-819-080		CAPACITOR, 0.01
CNA303	88-CD2-608-010		CONN ASSY, 10P H KEY
LED307	87-A40-525-080		LED, SEL6214S-TP6 RED
LED308	87-A40-525-080		LED, SEL6214S-TP6 RED
S341	87-036-170-080		TACT SWITCH
S342	87-036-170-080		TACT SWITCH
S343	87-036-170-080		TACT SWITCH
S344	87-036-170-080		TACT SWITCH
S345	87-036-170-080		TACT SWITCH
S346	87-036-170-080		TACT SWITCH
S347	87-036-170-080		TACT SWITCH
S348	87-036-170-080		TACT SWITCH
S349	87-036-170-080		TACT SWITCH
S350	87-036-170-080		TACT SWITCH
S351	87-036-170-080		TACT SWITCH
S352	87-036-170-080		TACT SWITCH
S353	87-036-170-080		TACT SWITCH
POWER C.B			
AJ100	87-049-784-010		AC JACK E
APT100	88-CD2-637-010		PT, 8CD-2 HE
AS100	87-A90-234-010		SW, SL 1-2-2 SW 2201
SWITCH C.B			
S329	87-036-170-080		TACT SWITCH
S330	87-036-170-080		TACT SWITCH
MOTOR 2 C.B			
M300	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
S300	87-A90-865-010		SW, LVR 5-1-2 MSX00250MLBO
MD C.B			
C100	87-A10-418-080		C-CAP, TN 22-4 A TCF<U, K>
C101	87-A10-418-080		C-CAP, TN 22-4 A TCF
C102	87-012-286-080		CAP, U 0.01-25
C103	87-010-787-080		CAP, U 0.022-25
C104	87-010-662-080		C-CAP, E 22-6.3
C105	87-010-831-080		C-CAP, U, 0.1-16F
C106	87-016-462-080		C-CAP, S 1-16 F
C107	87-012-195-080		C-CAP, U 100P-50CH
C108	87-012-274-080		CHIP CAP, U 1000P-50B
C109	87-016-436-080		C-CAP, TN 47-4 (B2)
C111	87-A10-418-080		C-CAP, TN 22-4 A TCF
C112	87-012-286-080		CAP, U 0.01-25
C113	87-012-284-080		CAP, U 6800P-50
C114	87-010-828-080		CHIP CAPACITOR, U 0.033-25F
C115	87-A10-369-080		C-CAP, S 0.47-16 K B
C116	87-012-282-080		CAP, U 4700P-50
C117	87-016-462-080		C-CAP, S 1-16 F
C118	87-012-282-080		CAP, U 4700P-50
C119	87-016-491-080		C-CAP, S 0.22-16 FZ
C120	87-010-787-080		CAP, U 0.022-25
C121	87-012-286-080		CAP, U 0.01-25
C122	87-010-829-080		CAP, U 0.047-16
C123	87-012-286-080		CAP, U 0.01-25
C124	87-010-662-080		C-CAP, E 22-6.3
C125	87-010-662-080		C-CAP, E 22-6.3
C201	87-010-831-080		C-CAP, U, 0.1-16F
C202	87-010-831-080		C-CAP, U, 0.1-16F
C203	87-010-785-080		C-CAP, U, 0.015-25BK

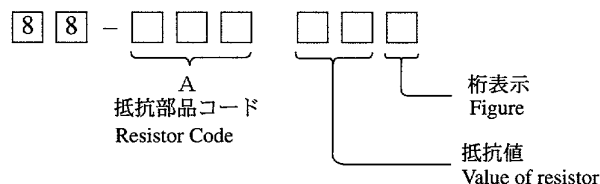
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C204	87-016-461-080		C-CAP, S 0.47-16F
C205	87-010-831-080		C-CAP, U, 0.1-16F
C206	87-012-270-080		CAP, U 470P-50
C207	87-016-461-080		C-CAP, S 0.47-16F
C208	87-012-286-080		CAP, U 0.01-25
C209	87-010-831-080		C-CAP, U, 0.1-16F
C210	87-012-172-080		CAPACITOR CHIP U 10P CH
C211	87-012-172-080		CAPACITOR CHIP U 10P CH
C212	87-012-195-080		C-CAP, U 100P-50CH
C213	87-010-662-080		C-CAP, E 22-6.3
C214	87-012-274-080		CHIP CAP, U 1000P-50B
C217	87-012-188-080		C-CAP, U 47P-50 CH
C218	87-012-188-080		C-CAP, U 47P-50 CH
C219	87-A10-418-080		C-CAP, TN 22-4 A TCF
C220	87-010-662-080		C-CAP, E 22-6.3
C221	87-010-831-080		C-CAP, U, 0.1-16F
C222	87-016-444-080		C-CAP, TN 47-10 F95E
C223	87-010-831-080		C-CAP, U, 0.1-16F
C224	87-A10-685-080		C-CAP, S 470P-100 J CH
C225	87-010-831-080		C-CAP, U, 0.1-16F
C226	87-010-831-080		C-CAP, U, 0.1-16F
C227	87-012-274-080		CHIP CAP, U 1000P-50B
C228	87-012-274-080		CHIP CAP, U 1000P-50B
C229	87-012-274-080		CHIP CAP, U 1000P-50B
C232	87-012-274-080		CHIP CAP, U 1000P-50B
C233	87-012-274-080		CHIP CAP, U 1000P-50B
C236	87-010-831-080		C-CAP, U, 0.1-16F
C300	87-010-831-080		C-CAP, U, 0.1-16F
C301	87-010-831-080		C-CAP, U, 0.1-16F
C302	87-010-831-080		C-CAP, U, 0.1-16F
C305	87-016-462-080		C-CAP, S 1-16 F
C307	87-010-831-080		C-CAP, U, 0.1-16F
C308	87-010-831-080		C-CAP, U, 0.1-16F
C311	87-010-662-080		C-CAP, E 22-6.3
C312	87-012-195-080		C-CAP, U 100P-50CH
C321	87-012-274-080		CHIP CAP, U 1000P-50B
C322	87-012-274-080		CHIP CAP, U 1000P-50B
C323	87-012-274-080		CHIP CAP, U 1000P-50B
C324	87-012-274-080		CHIP CAP, U 1000P-50B
C325	87-012-274-080		CHIP CAP, U 1000P-50B
C400	87-010-831-080		C-CAP, U, 0.1-16F
C401	87-010-831-080		C-CAP, U, 0.1-16F
C402	87-010-831-080		C-CAP, U, 0.1-16F
C403	87-010-831-080		C-CAP, U, 0.1-16F
C404	87-010-831-080		C-CAP, U, 0.1-16F
C405	87-010-661-080		C-CAP, E 10-16
C406	87-010-779-080		C-CAP, E 100-6.3
C407	87-012-197-080		C-CAP, U 150P-50 CH
C408	87-012-197-080		C-CAP, U 150P-50 CH
C411	87-012-271-080		CAP, U 560P-50
C412	87-012-271-080		CAP, U 560P-50
C413	87-012-197-080		C-CAP, U 150P-50 CH
C414	87-012-197-080		C-CAP, U 150P-50 CH
C417	87-012-268-080		C-CAP, U 330P-50 B
C418	87-012-268-080		C-CAP, U 330P-50 B
C423	87-012-286-080		CAP, U 0.01-25
C424	87-012-286-080		CAP, U 0.01-25
C429	87-012-286-080		CAP, U 0.01-25
C430	87-012-286-080		CAP, U 0.01-25
C431	87-010-779-080		C-CAP, E 100-6.3
C434	87-010-831-080		C-CAP, U, 0.1-16F
C501	87-010-831-080		C-CAP, U, 0.1-16F
C502	87-010-831-080		C-CAP, U, 0.1-16F
C503	87-010-662-080		C-CAP, E 22-6.3
C504	87-010-831-080		C-CAP, U, 0.1-16F
C505	87-010-662-080		C-CAP, E 22-6.3
C506	87-010-831-080		C-CAP, U, 0.1-16F
C507	87-010-661-080		C-CAP, E 10-16
C508	87-010-831-080		C-CAP, U, 0.1-16F
C509	87-010-662-080		C-CAP, E 22-6.3

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C510	87-010-831-080		C-CAP,U,0.1-16F	L201	87-A50-117-080		C-COIL,10UHLQH3C
C511	87-010-661-080		C-CAP,E 10-16	L202	87-A50-117-080		C-COIL,10UHLQH3C
C513	87-010-661-080		C-CAP,E 10-16	L203	87-A50-116-080		C-COIL,4.7UHLQH3C
C514	87-010-661-080		C-CAP,E 10-16	L301	87-A50-117-080		C-COIL,10UHLQH3C
C515	87-012-337-080		C-CAP,U 56P-50 CH	L501	87-A50-116-080		C-COIL,4.7UHLQH3C
C516	87-012-337-080		C-CAP,U 56P-50 CH	L502	87-A50-116-080		C-COIL,4.7UHLQH3C
C517	87-012-278-080		C-CAP,U 2200P-50 B	L503	87-A50-116-080		C-COIL,4.7UHLQH3C
C518	87-012-278-080		C-CAP,U 2200P-50 B	L504	87-005-774-080		C-COIL,4BLH
C519	87-010-831-080		C-CAP,U,0.1-16F	L505	87-005-774-080		C-COIL,4BLH
C520	87-010-661-080		C-CAP,E 10-16	L611	87-A50-163-080		C-COIL,ZBFS5101-PT
C521	87-010-831-080		C-CAP,U,0.1-16F	L612	87-005-512-080		C-COIL,BLM21A05
C522	87-010-661-080		C-CAP,E 10-16	L613	87-005-512-080		C-COIL,BLM21A05
C523	87-010-662-080		C-CAP,E 22-6.3	L614	87-A50-163-080		C-COIL,ZBFS5101-PT
C524	87-010-662-080		C-CAP,E 22-6.3	L615	87-A90-034-080		C-FLTR,EMI BLM41P750
C525	87-012-274-080		CHIP CAP,U 1000P-50B	L616	87-A50-163-080		C-COIL,ZBFS5101-PT
C526	87-012-274-080		CHIP CAP,U 1000P-50B	R423	87-025-564-080		C-RES,U M/F 47K D
C527	87-010-661-080		C-CAP,E 10-16	R424	87-025-564-080		C-RES,U M/F 47K D
C528	87-010-661-080		C-CAP,E 10-16	R425	87-022-583-080		C-RES,U M/F 12K D
C530	87-010-831-080		C-CAP,U,0.1-16F	R426	87-022-583-080		C-RES,U M/F 12K D
C531	87-010-831-080		C-CAP,U,0.1-16F	X200	87-A70-105-080		C-VIB,XTAL 22.5792MHZ SMD-49
C600	87-010-662-080		C-CAP,E 22-6.3	X301	87-A70-100-080		C-VIB,CER 12.0MHZ PBRC-BR-A
C601	87-010-779-080		C-CAP,E 100-6.3				
C602	87-010-779-080		C-CAP,E 100-6.3				
C603	87-010-662-080		C-CAP,E 22-6.3				
C604	87-010-779-080		C-CAP,E 100-6.3				
C605	87-012-286-080		CAP, U 0.01-25	M450	87-A90-672-010		MOT,M25E-4
C607	87-010-831-080		C-CAP,U,0.1-16F	SW451	87-A90-673-010		SW,MICRO ESE11SH1C
C608	87-010-831-080		C-CAP,U,0.1-16F	SW452	87-A90-117-010		SW,PUSH 1-1-1 MPU103
FC100	87-ZG9-602-010		FF-CABLE, 21P 0.5 90MM				
FC400	87-ZG9-603-010		FF-CABLE, 8P 1.0 120MM				
FC401	87-ZG9-604-010		FF-CABLE, 5P 1.25 100MM				
L100	87-A50-117-080		C-COIL,10UHLQH3C	SW400	87-A90-611-010		SW,PUSH 3-2-2 MPU20300MLB0
L101	87-A50-012-080		C-COIL,100UH LQH3C	SW401	87-A90-612-010		SW,PUSH 2-1-1 MPU10371MLB1
L102	87-A50-117-080		C-COIL,10UHLQH3C				
L103	87-A50-117-080		C-COIL,10UHLQH3C				


- コネクタについては、初回発注の扱いとはせず、受注後に業者へ発注し、供給致します。
- Regarding connectors, they are not stocked as they are not the initial order items.  
The connectors are available after they are supplied from connector manufacturers upon the order is received.

#### ○ チップ抵抗部品コード / CHIP RESISTOR PART CODE

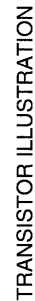
チップ抵抗部品コードの成り立ち  
Chip Resistor Part Coding



チップ抵抗  
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法 / Dimensions (mm)				抵抗コード : A Resistor Code : A
				外形 / Form	L	W	t	
1/16W	1608	5%	CJ		1.6	0.8	0.45	108
1/10W	2125	5%	CJ		2	1.25	0.45	118
1/8W	3216	5%	CJ		3.2	1.6	0.55	128

GRID ASSIGNMENT

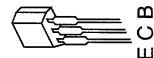


BCE

2SB1375

2SA1318  
2SC1815  
KTA1266

2SA1162  
2SA1588  
2SC2712  
2SC2714  
2SC3052  
2SC4116  
DTA114YK  
DTC114YK



BE

2SA933  
2SC4115  
DTC323T


$$\sum_{\omega}$$

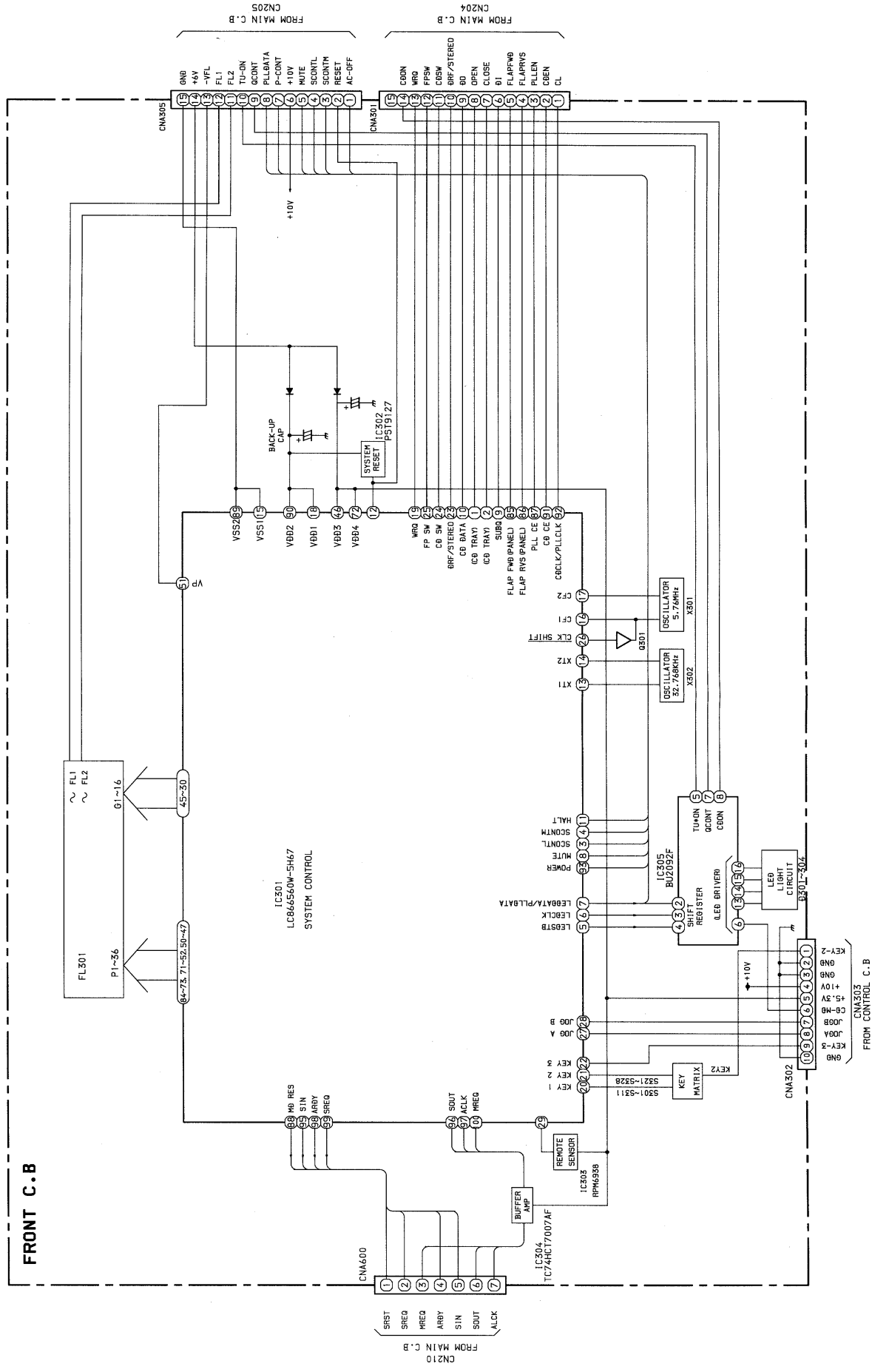
2SA1162  
2SA1588  
2SC2712  
2SC2714  
2SC3052  
2SC4116  
DTA114YK  
DTC114YK

[illegible]



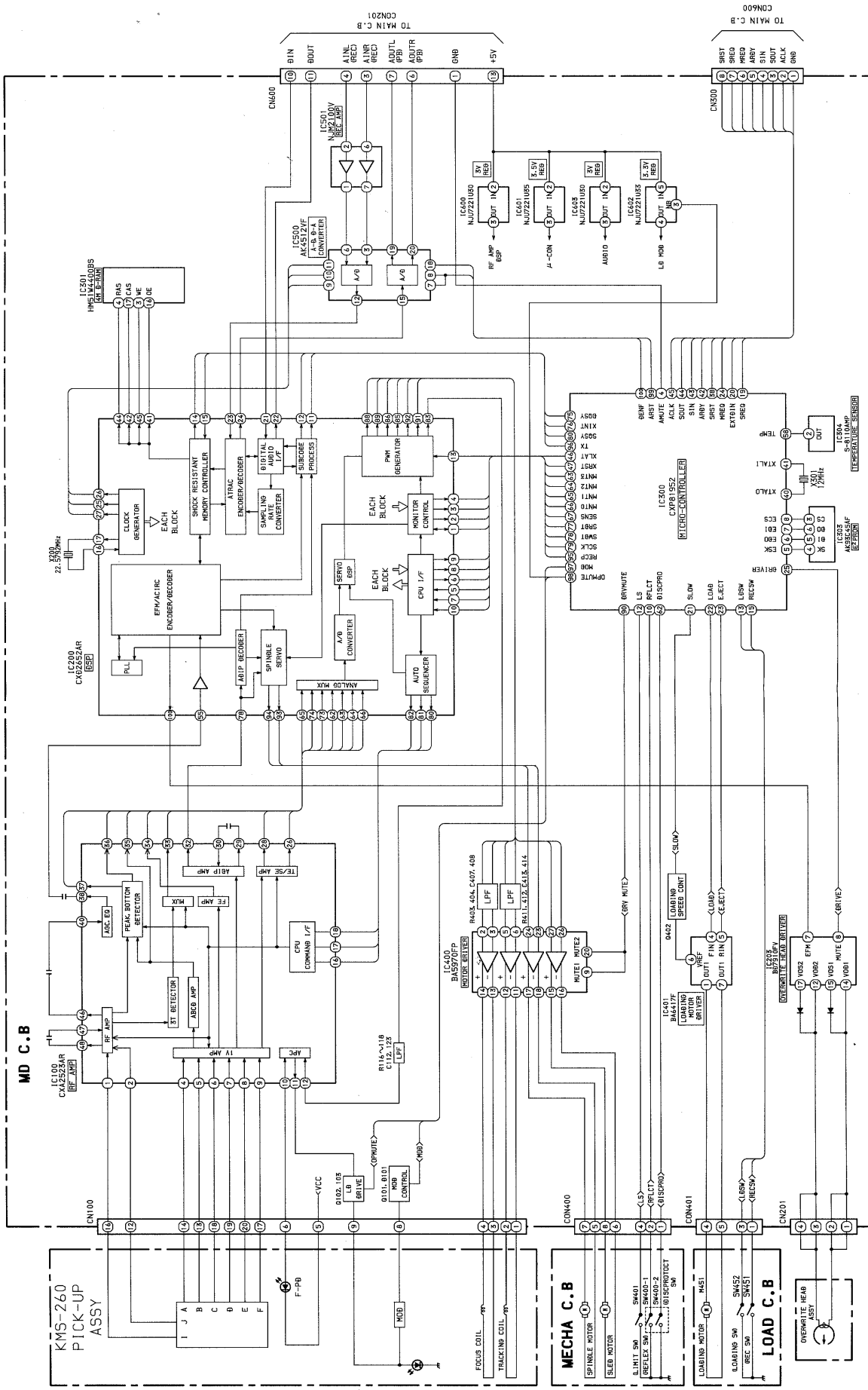


BLOCK DIAGRAM-3 (FRONT)



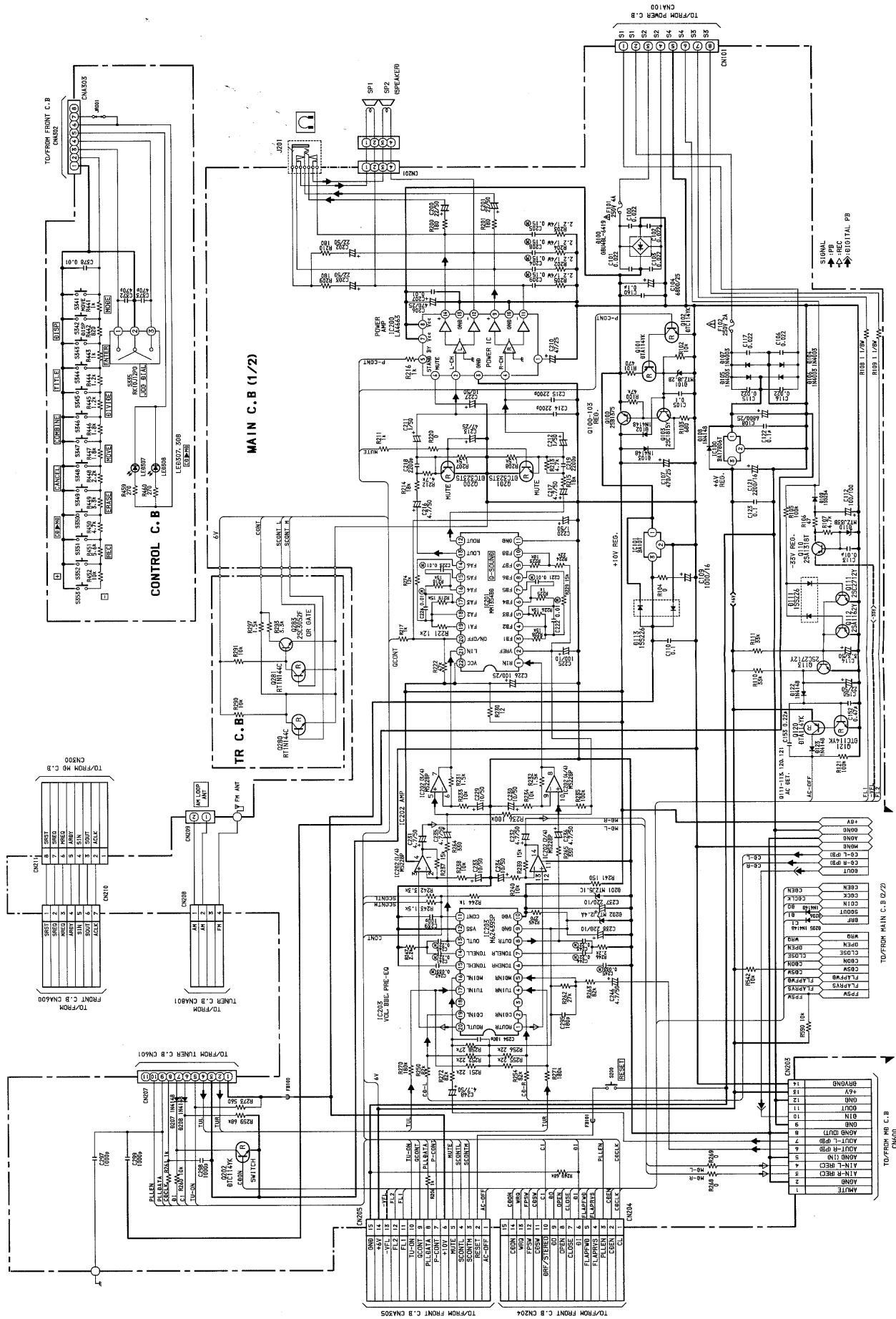


**BLOCK DIAGRAM-4 (MD)**





SCHEMATIC DIAGRAM-1 (MAIN)

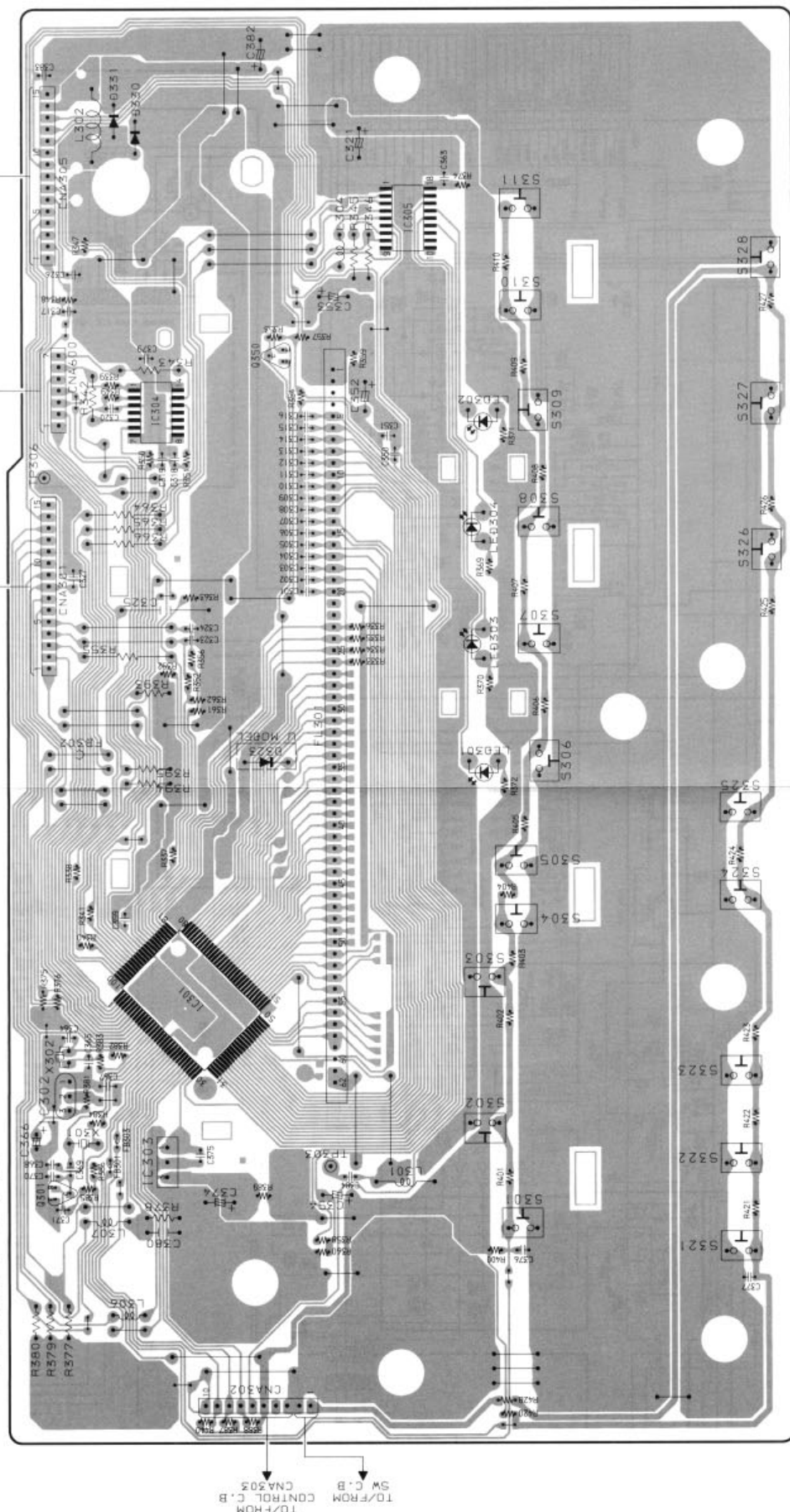


# FRONT C.B.

TO/FROM MAIN C.B.  
CN204

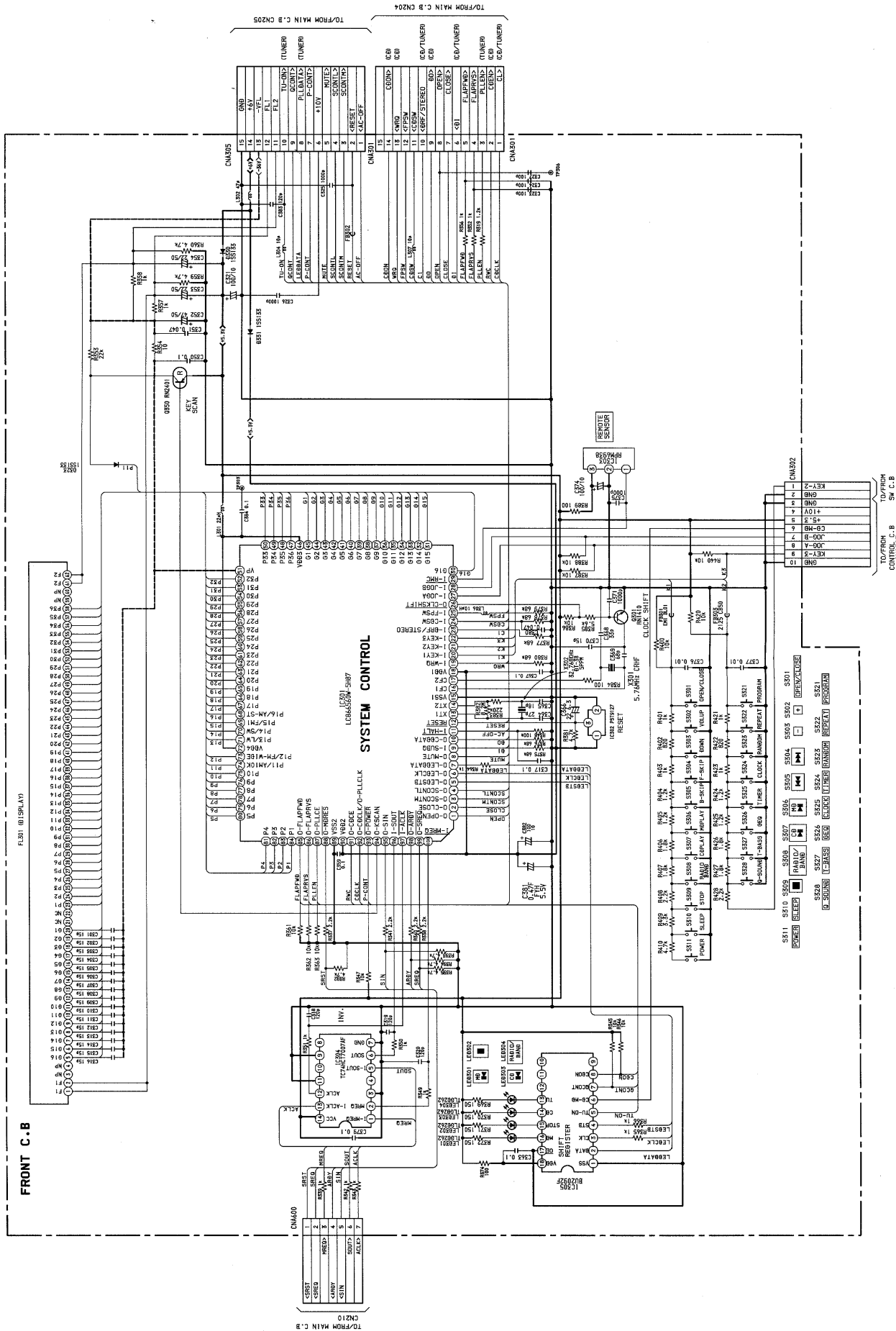
TO/FROM MAIN C.B.  
CN210

TO/FROM MAIN C.B.  
CN205

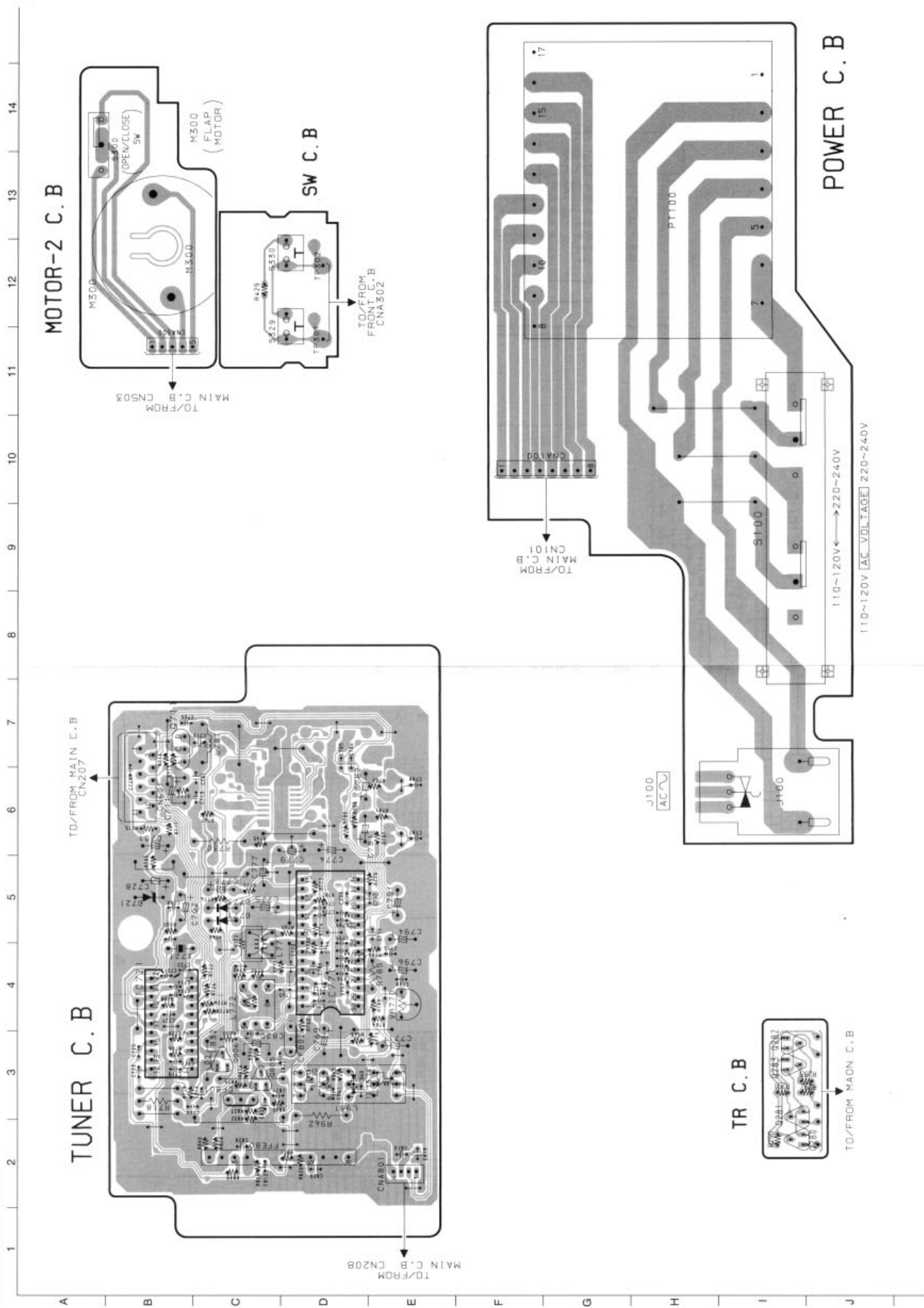


- S301 OPEN/CLOSE
- S302 + VOLUME
- S303 -
- S304
- S305
- S306-LED301
- S307-LED303
- S308-LED304
- S309-LED302
- S310 SLEEP
- S311 POWER
- S321 PROGRAM
- S322 REPEAT
- S323 RANDOM
- S324 TIMER
- S325 CLOCK
- S326 GEO
- S327 T-BASS
- S328 Q-SOUND

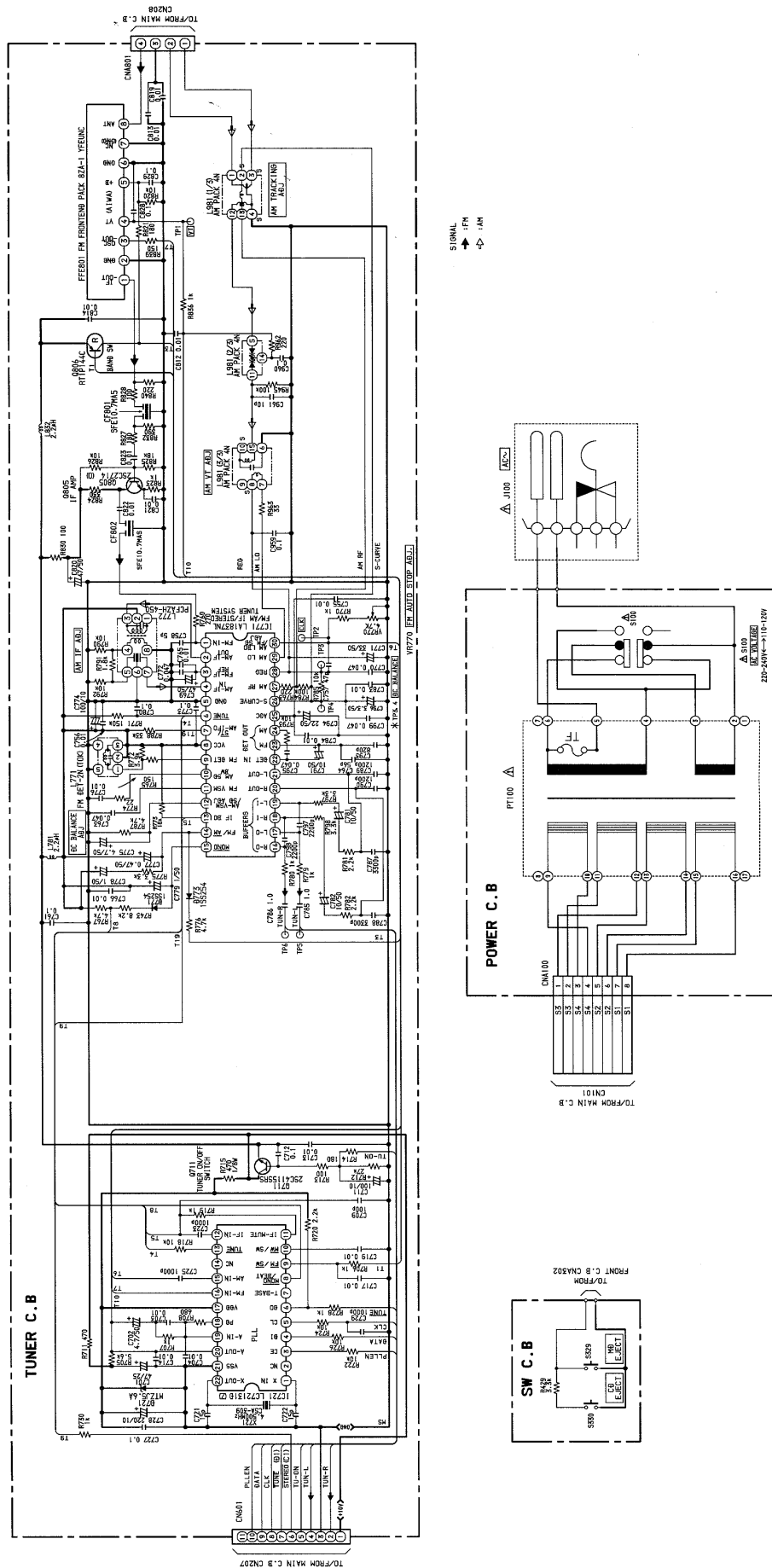
SCHEMATIC DIAGRAM-2 (FRONT)



## WIRING-3 (TUNER)



SCHEMATIC DIAGRAM-3 (TUNER)

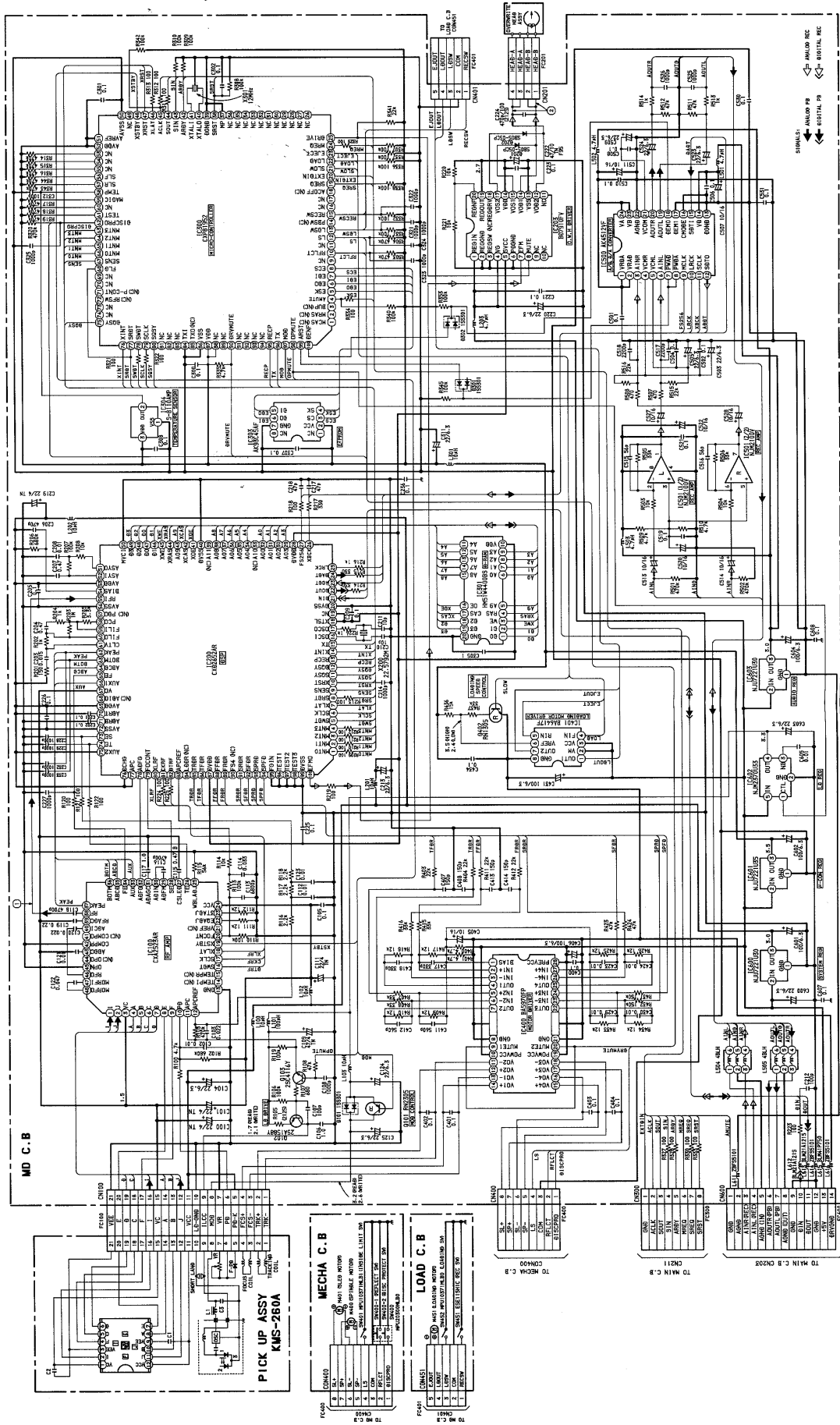




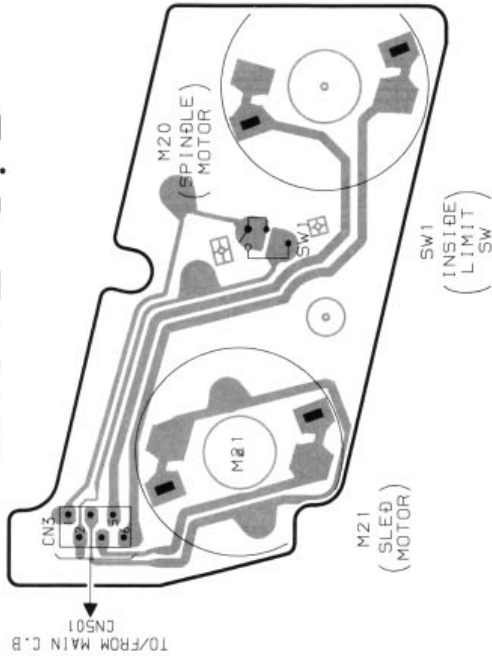




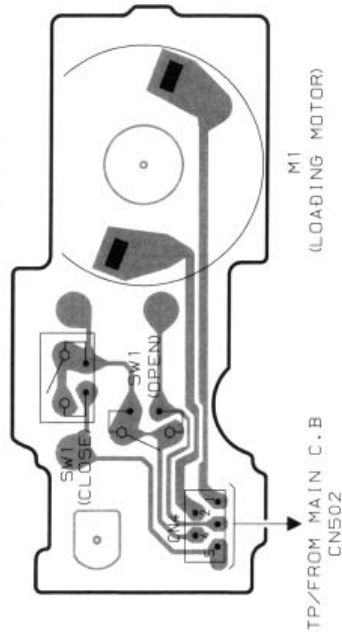
# SCHEMATIC DIAGRAM-4 (MD)



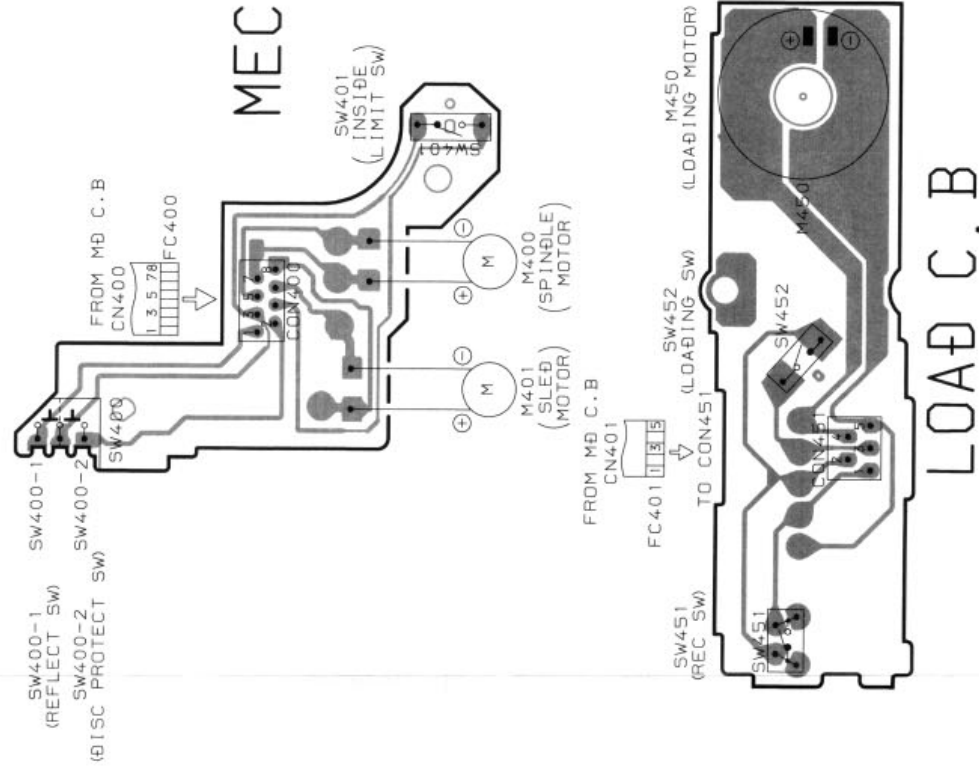
# DRIVE C.B



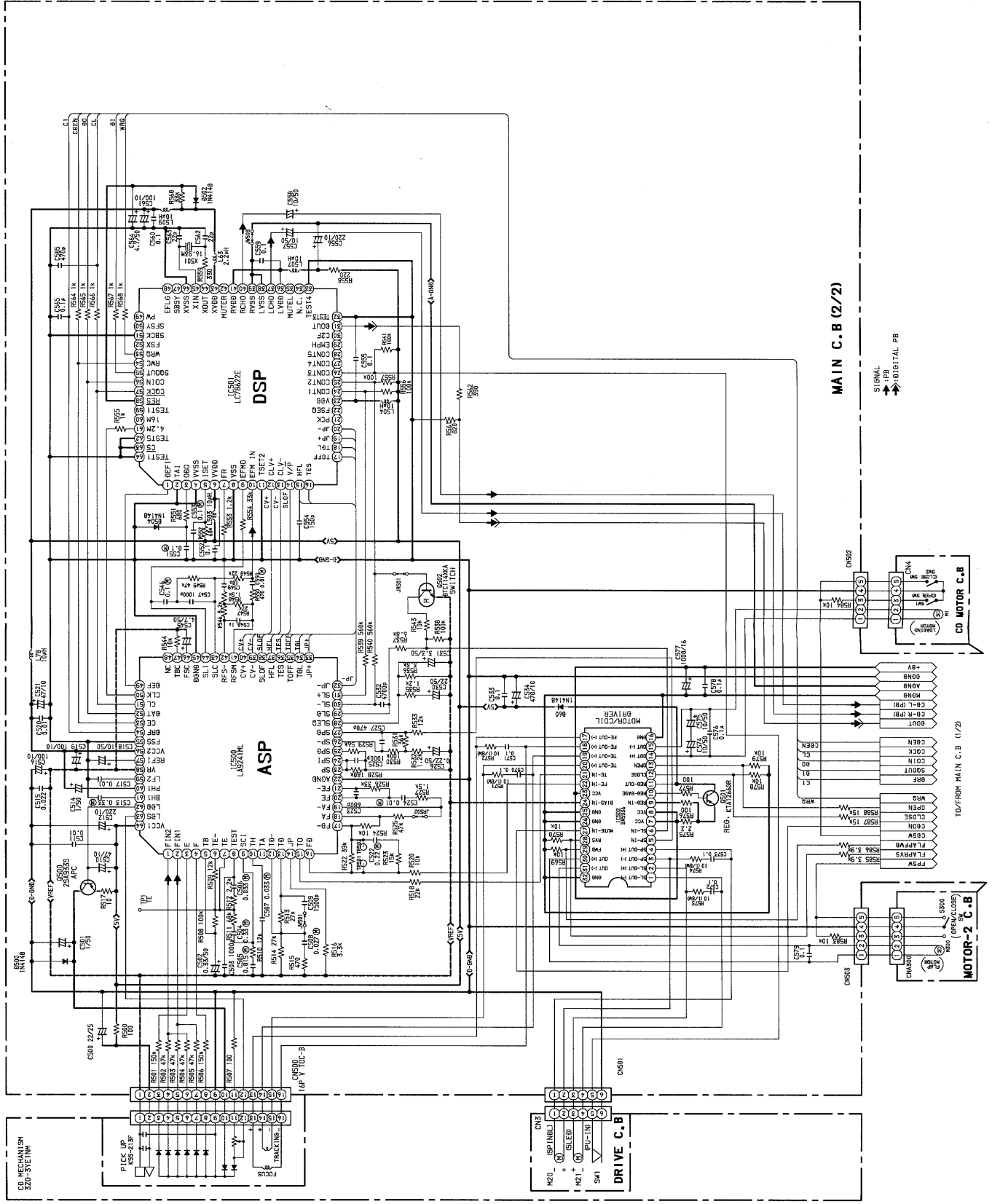
# CØ MOTOR C.B



# MECHA C.B



SCHEMATIC DIAGRAM-5 (CD)



## TEST MODE

### 1. How to Active and Cancel the TEST Mode, and Precaution.

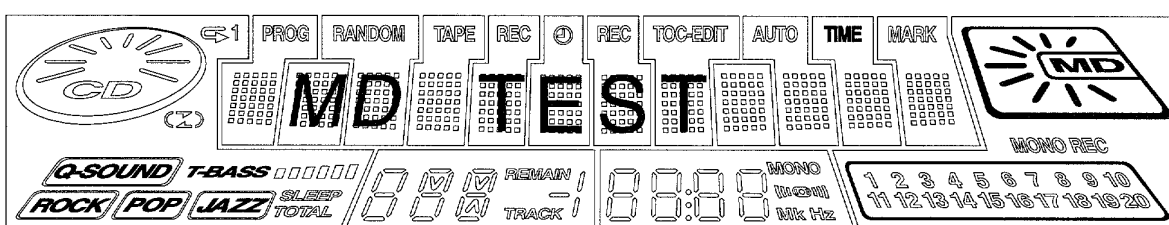
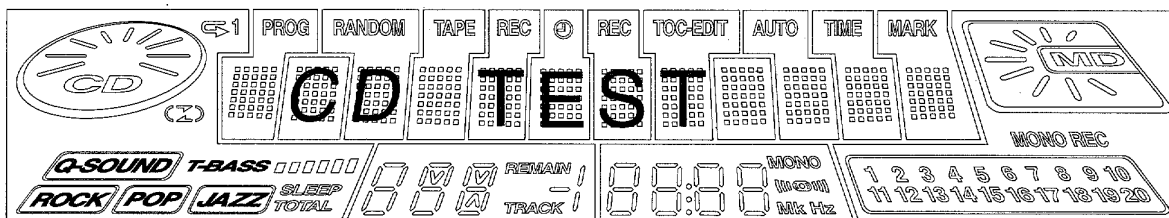
The TEST mode has the CD test mode and the MD test mode.

#### 1-1. How to Active Each TEST Mode.

After selecting the TEST mode to be activated, active the desired TEST mode using one of the following two methods.

- Press the RESET button on the rear while pressing ►|| button of CD or MD.
- Connect the AC power plug into power outlet while pressing ►|| button of CD or MD.

After the TEST mode is activated, the operation panel is opened and the following display appears.



#### 1-2. How to Cancel the TEST Mode.

The TEST mode is canceled by pressing the POWER button even while the TEST mode is in progress. The TEST mode is also canceled by selecting any other functions.

### 3. CD TEST Mode

#### 3-1. Active the TEST mode. The CD TEST message appears on the display.

#### 3-2. Description of the TEST Mode Functions

Mode	Operating Control	FL Display	Operation	Function
Start mode	Activating the test mode	CD TEST		
Search mode	■	TOC READING	Continuous focus search PU lens repeats full swing * Note	APC circuit check Laser current measurement Focus error waveform check
Play mode	►	Track No. is displayed Eye catch rotates	Normal playback When the TOC READING cannot be performed, the same movement as the search mode is performed	Focus servo Tracking servo CLV servo Sled servo
Traverse mode	►	Eye catch flashes	Playback pause state	Tracking servo OFF
Sled mode	►► ◄◄	CD TEST	Pick up moves inner circumference Pick up moves outer circumference	Sled servo Mechanism operation check

**Note:** If the focus search is continued for ten minutes or longer, CD stops working because driver IC is heated and protection circuit works. Restart the TEST mode after turning off the power supply to cool down the heat for about ten minutes.

## 4. MD TEST Mode

Active the TEST mode. The message MD TEST appears on the display.  
The TEST mode has operation check mode and adjustment mode.

Note: 1. If a machine shows any abnormal operations during the TEST mode, unplug the main AC power immediately.  
2. Recording and played back are not possible during the TEST mode.

### 4-1. Operation Check Mode

- 1) How to check activation of the TEST mode.

Playback system audio circuit can be checked as follows.

- Circuit that can be checked ..... DAC, LINE AMP, HEADPHONE AMP
- Output level ..... 1kHz, -16.5dB

- 2) How to check status of the switches.

After a disc is inserted, press the “ENTER” button. The ON/OFF status of the respective switches on the machine and mechanism can be checked on the LCD display.

Switch Name	Switch Status	Display	Disc in use
REC PROTECT	When the WRITE PROTECT tab of a disc is closed	ROCK frame is ON	Disc in use
REFRECT	When high reflection disc (CD) is used	POP frame is ON	Disc for record and playback
INNER	When pick up is in the inner most circumference (LIMIT SW ON)	JAZZ frame is ON	Disc for playback only

- 3) How to check the sled movement.

Movement of sled motor and pick up can be checked by pressing the ►► (to outer circumference) and ◄◄ (to inner circumference) buttons. “T.SLED FWD” is displayed during moving to outer circumference, and “T.SLED RVS” is displayed during moving to inner circumference.

- 4) How to check laser output.

Every passing of the “T.BASS” in STOP state changes output of laser power.

Laser can be operated in the following order: OFF → READ → 1/2 → WRITE → OFF.

Every passing of the “T.BASS” increases two steps of T.BASS bar display so that the status can be checked.

Mode	FL Display
OFF	ALL SV OFF
LASER READ	LASER READ
LASER 1/2 WRITE	LASER 1/2
LASER WRITE	LASER WRITE

- 5) How to cancel loading

When the “MD eject” button is pressed, loading state is canceled.

- 6) OWH (Over-write-head)

Movement of OWH can be checked during the loading state.

“MD → CD” button ..... OWH DOWN

“MD eject” button ..... OWH UP

Note: 1. Don't move down the OWH when the high reflection disc (CD) is used.

2. If a disc is inserted while the OWH is moved down, the OWH physically is bent.

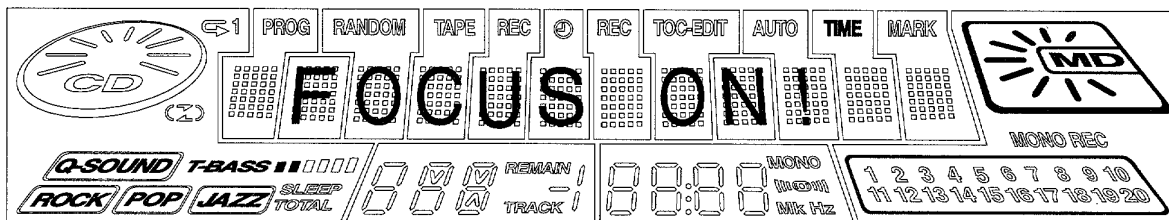
- 7) How to Check Servo Operation.

- Checking the focus search and spindle kick.

When the MD ►► is pressed without inserting a disc, focus search and spindle kick can be checked. This operation is repeated until ■ button is pressed.

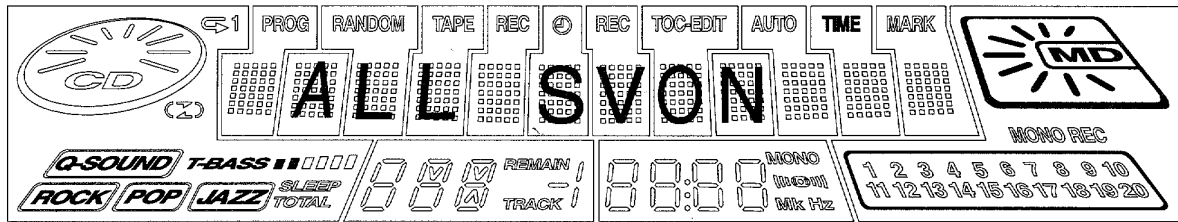
- Checking the focus servo.

Insert a disc, press MD ►► button to turn on the focus servo. Then, “FOCUS ON!” appears on the display.



- How to check all servos ON.

After pressing the MD ► button to turn on the focus, press the “ENTER” button. Tracking servo and sled servo are turned on and all servos work. Then, the message “ALL SV ON” appears on the display.



## 4-2. Adjustment Mode

### 4-2-1. Temperature Compensation Adjustment

Test point: Adjustment result is shown on the display

Jig: Thermometer

Adjustment method:

- 1) After activating the MD TEST mode press the ■ button to show “ALL SV OFF” on the display.
  - 2) Press the “DISP” button to change the display to “TMP\*\*”.
  - 3) Press CD ► button to change the display into “T+\*\* +00”.
  - 4) Place a thermometer near MD mechanism to measure the room temperature.
  - 5) Perform adjustment by pressing the ◀ and ▶ buttons until the thermometer reading and the value \*\* that is shown on the display agree. Press the “ENTER” button.
  - 6) After adjustment is completed, press the ■ button to display “ALL SV OFF”.
  - 7) When the setting is completed, “T + \*\* ###” is displayed instead of the display of step 3).
- The value that is calculated by adding or subtracting the ### value to and from \*\* must be the room temperature.

**Note:** Don’t perform the above adjustment if the room temperature cannot be measured.

### 4-2-2. Laser Power Adjustment

Test point: pick up laser output

Jig: Laser power meter

Adjustment method:

- 1) Press the “T.BASS” button three times in the “ALL SV OFF” state to change the display to “LASER WRITE”.
- 2) Press CD ► button to change the display to “LASER\*\*”.
- 3) Perform adjustment by pressing the ◀ and ▶ buttons so that the laser power meter reading is  $6.8 \pm 0.03$  mW.
- 4) After adjustment is completed, press the “ENTER” button then press the ■ button to display “ALL SV OFF”.

**Note:** If laser output exceeds 7.0 mW, the pick up may be damaged.

### 4-2-3. AUTO SEQUENCE Adjustment and Check

Test disc: MDW-60. TGYS-1

When adjusting MO disc

- 1) Insert the test disc MDW-60.
- 2) Press the ■ button to display “ALL SV OFF”.
- 3) When the “TITLE” button is pressed, “AUTO ADJ” is displayed. When adjustment is completed, “DONE” is displayed. (When “FAILED” appears, it means that adjustment has failed.)
- 4) When adjustment is completed, press ■ button to display “ALL SV OFF”.

**Note:** 1. If a test disc is dirty or has scratches, the complete adjustment may be not performed.

Be sure to use a clean disc.

2. When adjusting the MO disc, the pre-recorded data on the MO disc is erased partly because WRITE POWER is on. Use an exclusive disc for adjustment.

How to check IVR, EFB, and focus/tracking/sled gain.

- ① Move the optical pick up to the center with ◀ button and ▶ button.
  - ② Press the MD ► button to display “FOCUS ON!”.
  - ③ Press the “ENTER” button to turn on “ALL SV ON”.
  - ④ Press the “DISP” button to display “IV\*\*E\*\*”.
- Check that value of the display is within the specifications shown below.
- IVR ..... 13-17
- EFB ..... 09-12

- ⑤ Press the "DISP" button to show "\*\*\* ## &&" on the display. (hexadecimal display)  
Check that value of the display is within the range shown below.  
F\*\* ..... 20-40  
T## ..... 15-35  
S&& ..... 15-35
- ⑥ When the adjustment is completed, press the ■ button to display "ALL SV OFF".

#### Adjusting PIT disc

- 1) Insert the test disc TGYS-1.
- 2) Press the ■ button to display "ALL SV OFF".
- 3) When the "TITLE" button is pressed, "AUTO ADJ" is displayed. When the adjustment is completed, "DONE" is displayed.  
(When "FAILED" appears, it means that adjustment has failed.)
- 4) When the adjustment is completed, press the ■ button to display "ALL SV OFF".

How to check IVR, EFB, and focus/tracking/sled gain.

Perform the same operations as the MO disc check, using the PIT disc. The data on the display must be within the following range.

IVR ..... 14-19  
EFB ..... 09-12  
F\*\* ..... 2A-45  
T## ..... 20-40  
S&& ..... 20-40

#### 4-2-4. Error Rate Check (PIT disc)

- 1) Insert the test disc TGYS-1.
- 2) Move the optical pick up to the center with ◀◀ button and ▶▶ button.
- 3) Press the "MODE" button to display "SELECT PIT".
- 4) Press MD ▶|| button to display "FOCUS ON!".
- 5) Press the "ENTER" button to display "ALL SV ON", and press the "DISP" button to display "Er00\*\* 0000".
- 6) Check the underlined value of Er00\*\* 0000 is "30" or less.
- 7) When the adjustment is completed, press the ■ button to display "ALL SV OFF".

#### 4-2-5. Record/Playback Error Rate Check (MO disc)

- 1) Insert the test disc MDW-60.
- 2) Move the optical pick up to the center with ◀◀ button and ▶▶ button.
- 3) Press the "MODE" button to display "SELECT GRV".
- 4) Press the "MD REC" button to display "REC Analog".  
When "REC Digital" is displayed, press the ■ button then press the CD ▶|| button to change the setting, and perform step 3) and higher again.
- 5) Press the MD ▶|| button to display "FOCUS ON!".
- 6) Press the "CD → MD" button after pressing the "ENTER" button to display "ALL SV ON".
- 7) When the "MD REC" is repressed, the OWH moves. The recording starts from the 600 cluster.  
Then the display changes from "ALL SV ON" to "ADR\*\* ##". The value 00 with underline of "ADR\*\* ##" means the 600 cluster
- 8) After recording of about 15 seconds, press ■ button to display "ALL SV OFF". Press the "MD eject" button again to move up the OWH.
- 9) Press the MD ▶|| button to playback the recorded segment.
- 10) Press the "ENTER" to display "ALL SV ON", and press the "DISP" button to display "00\*\* 0000".  
Check that the underlined value of the display 00\*\* 0000 is "20" or less when cluster is 600 or higher.
- 11) After adjustment is completed, press the ■ button to display "ALL SV OFF".

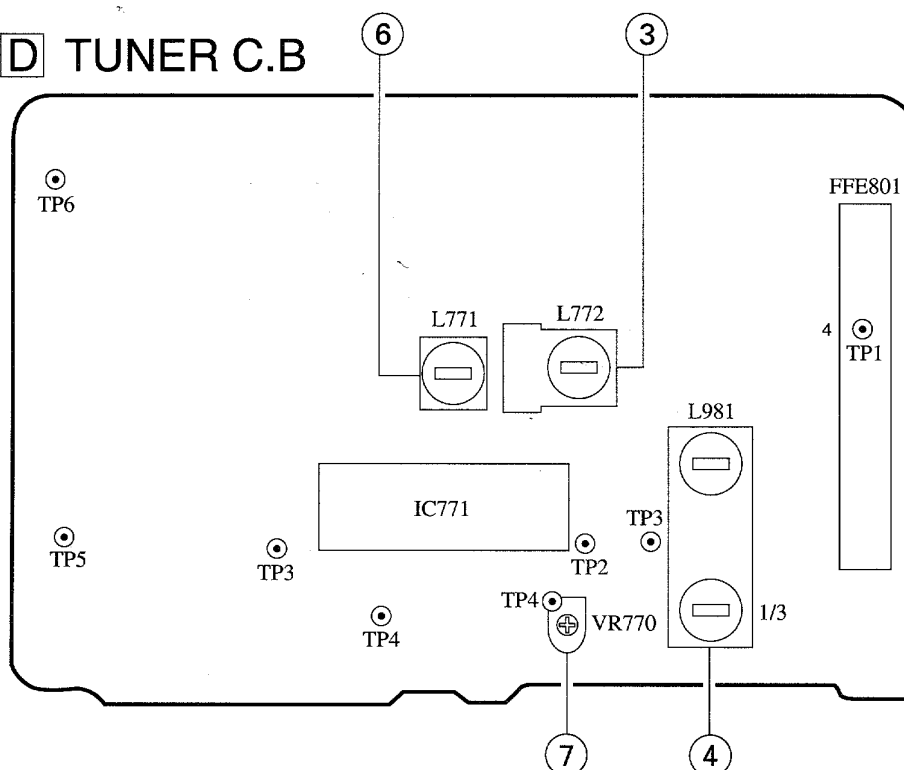
#### 4-2-6. UTOC ERASE

Perform the following procedure only when the recorded disc needs to be erased.

- 1) Insert a disc from which UTOC is going to be erased.
- 2) Move the optical pick up to the center with ◀◀ button and ▶▶ button.
- 3) Press the "MODE" button to display "SELECT GRV".
- 4) Press the "REC" button to display "REC Analog".
- 5) Press MD ▶|| button to display "FOCUS ON!".
- 6) Press the "CD → MD" button after pressing the "ENTER" button to display "ALL SV ON".
- 7) When the "ERASE" button is pressed, "UTOC ERASE" appears on the display and UTOC is erased. After erasure is completed, "ALL SV OFF" appears on the display.
- 8) Press the "MD eject" button two times to eject the disc.

## ELECTRICAL ADJUSTMENT

### D TUNER C.B



#### < TUNER SECTION >

1. Clock Frequency Check
  - Settings: • Test point: TP2 (CLK IC770 pin30)
  - Method: Set to AM 1602kHz and check that the test point becomes  $2052\text{kHz} \pm 45\text{Hz}$ .
2. AM VT Check
  - Settings: • Test point: TP1 (VT)
  - Method: Set to AM 1602kHz and check that the test point is less than 8.0V.  
Then set to AM 531kHz and check that the test point is more than 0.6V.
3. AM IF Adjustment
  - Settings: • Test point: TP5, TP6  
L772 ..... 450kHz
4. AM Tracking Adjustment
  - Settings: • Test point: TP5, TP6  
• Adjustment location: L981
  - Method: Set to AM 999kHz and adjust L981 so that the test point becomes maximum.
5. FM VT Check
  - Settings: • Test point: TP1 (VT)
  - Method: Set to FM 87.5MHz, 108.0MHz and check that the test point is more than 0.4V (87.5MHz) and less than 9.0V (108.0MHz).
6. DC Balance/Mono Distortion Adjustment
  - Settings: • Test point: TP3, TP4  
• Adjustment location: L771  
• Input level: 54dB
  - Method: Set to FM 98.0MHz and adjust L771 so that the voltage between TP3 and TP4 becomes  $0\text{V} \pm 0.04\text{V}$ .  
Next, check that the distortion is less than 1.3%.
7. FM Auto Stop Adjustment
  - Settings: • Adjustment location: VR770  
• Input level:  $28\text{dB}\mu\text{V}$
  - Method: Set to FM 98.0MHz and adjust VR770 so that the level  $28\text{dB}\mu\text{V} \pm 3\text{dB}$ .

## PRACTICAL SERVICE FIGURE

### < TUNER SECTION >

#### <FM SECTION>

IHF Sensitivity:	4dB±6dB
(THD 3%)	(at 87.5/98.0MHz)
Signal to noise ratio:	5dB±6dB (at 108MHz)
	(at 98.0MHz)
	More than 65dB
	(at 98.0MHz)
	Less than 1.3%
	(at 98.0MHz)
	More than 25dB
	(at 98.0MHz)
Intermediate frequency:	10.7MHz

#### <AM SECTION>

Sensitivity:	54dB±6dB (at 600kHz)
(S/N 20dB)	52dB±6dB
	(at 1000/1400kHz)
Signal to noise ratio:	41dB±36dB (at 1000kHz)
(Input: 100dB)	
Distortion:	Less than 1.5%
	(at 1000kHz)
Intermediate frequency:	450kHz



IC DESCRIPTION  
IC, LC866560W-5H67

Pin No.	Pin Name	I/O	Description
1	OPEN	O	CD tray control.
2	CLOSE	O	
3	SCONT M	O	Electronic volume/function/graphic equalizer controls.
4	SCONT L	O	
5	LED STB	O	Latch for shift register.
6	LED CLK	O	Clock for shift register.
7	LED DATA	O	Data for shift register.
8	MUTE	O	Mute switch.
9	SUBQ	I	Serial data input.
10	CD DATA	O	Serial data output.
11	HALT	I	AC power supply monitoring. H: AC is supplied L: AC is not supplied
12	RESET	I	Reset terminal.
13	XT1	I	Microprocessor sub clock input. (32.768 kHz)
14	XT2	O	Microprocessor sub clock output. (32.768 kHz)
15	VSS1	—	GND.
16	CF1	I	Microprocessor main clock input. (5.76 MHz)
17	CF2	O	Microprocessor main clock output. (5.76 MHz)
18	VDD1	—	Power supply (5.3 V).
19	WRQ	I	CD sub code Q output standby.
20-22	KEY1-KEY3	I	Tact key input.
23	DRF/STEREO	I	CD RF level detection/tuner stereo detection. H: stereo
24	CDSW	I	CD tray open/close detection.
25	FPSW	I	Control panel open/close detection.
26	CLOCK SHIFT	O	Clock shift terminal.
27	JOGA	I	Rotary encoder input.
28	JOGB	I	
29	RMC	I	Remote control input.
30-45	G16-G1	O	FL tube grid signal output.
46	VDD3	—	Power supply (5.3 V).
47-50	P36-P33	O	FL tube segment signal output.
51	VP	—	Pulldown power supply input (-36 V).
52-67	P32-P17	O	FL tube segment signal output.
68-71	P16-P13	I/O	FL tube segment signal output/key scan input.
72	VDD4	—	Power supply (5.3 V).
73, 74	P12, P11	I/O	FL tube segment signal output/key scan input.
75-84	P10-P1	O	FL tube segment signal output.
85	FLAP FWD	O	Control panel open/close control.
86	FLAP RVS	O	
87	PLL CE	O	PLL IC chip enable for tuner.
88	MD/RES	O	MD reset.
89	VSS2	—	Power supply (5.3 V).

Pin No.	Pin Name	I/O	Description
90	VDD2	—	GND.
91	CDCE	O	CD command read/write control.
92	CDCLK/PLLCLK	O	Serial transfer clock.
93	POWER	O	System power supply switch.
94	KSCAN	O	Key scan reading sync signal
95	SIN	O	Serial data output for MD control.
96	SOUT	I	Serial data input for MD control.
97	ACLK	I	Serial transfer clock for MD control.
98	ARDY	O	Serial data receive ready output for MD.
99	SREQ	O	MAIN CPU data transfer request.
100	MREQ	I	MD CPU data transfer request.

# IC, LA9241M

Pin No.	Pin Name	I/O	Description
1	FIN2	I	Pin to which external pickup photo diode is connected. RF signal is created by adding with the FIN1 pin signal. FE signal is created by subtracting from the FIN1 pin signal.
2	FIN1	I	Pin to which external pickup photo diode is connected.
3	E	I	Pin to which external pickup photo diode is connected. TE signal is created by subtracting from the F pin signal.
4	F	I	Pin to which external pickup photo diode is connected.
5	TB	I	DC component of the TE signal is input.
6	TE–	I	Pin to which external resistor setting the TE signal gain is connected between the TE pin.
7	TE	O	TE signal output pin.
8	TESI	I	TES “Track Error Sense” comparator input pin. TE signal is passed through a band-pass filter then input.
9	SCI	I	Shock detection signal input pin.
10	TH	I	Tracking gain time constant setting pin.
11	TA	O	TA amplifier output pin.
12	TD–	I	Pin to which external tracking phase compensation constants are connected between the TD and VR pins.
13	TD	I	Tracking phase compensation setting pin.
14	JP	I	Tracking jump signal (kick pulse) amplitude setting pin.
15	TO	O	Tracking control signal output pin.
16	FD	O	Focusing control signal output pin.
17	FD–	I	Pin to which external focusing phase compensation constants are connected between the FD and FA pins.
18	FA	I	Pin to which external focusing phase compensation constants are connected between the FD– and FA– pins.
19	FA–	I	Pin to which external focusing phase compensation constants are connected between the FA and FE pins.
20	FE	O	FE signal output pin.
21	FE–	I	Pin to which external FE signal gain setting resistor is connected between the FE pin.
22	AGND	—	Analog signal GND.
23	NC	—	No connection.
24	SP	O	Single ended output of the CV+ and CV– pin input signal.
25	SPG	I	Pin to which external spindle gain setting resistor in 12 cm mode is connected.
26	SP–	I	Pin to which external spindle phase compensation constants are connected together with SPD pin.
27	SPD	O	Spindle control signal output pin.
28	SLEQ	I	Pin to which external sled phase compensation constants are connected.
29	SLD	O	Sled control signal output pin.
30, 31	SL–, SL+	I	Sled advance signal input pin from microprocessor.
32, 33	JP–, JP+	I	Tracking jump signal input pin from DSP.
34	TGL	I	Tracking gain control signal input from DSP. Low gain when TGL = H.
35	TOFF	I	Tracking off control signal input pin from DSP. Off when TOFF = H.

Pin No.	Pin Name	I/O	Description
36	TES	O	Pin from which TES signal is output to DSP.
37	HFL	O	“High Frequency Level” is used to judge whether the main beam position is on top of bit or on top of mirror.
38	SLOF	I	Sled servo off control input pin.
39, 40	CV-, CV+	I	CLV error signal input pin from DSP.
41	RFSM	O	RF output pin.
42	RFS-	I	RF gain setting and EFM signal 3T compensation constant setting pin together with RFSM pin.
43	SLC	O	“Slice Level Control” is the output pin which controls the RF signal data slice level by DSP.
44	SLI	I	Input pin which control the data slice level by the DSP.
45	DGND	—	Digital system GND.
46	FSC	O	Output pin to which external focus search smoothing capacitor is connected.
47	TBC	I	“Tracking Balance Control” EF balance variable range setting pin.
48	NC	—	No connection.
49	DEF	O	Disc defect detector output pin.
50	CLK	I	Reference clock input pin. 4.23 MHz of the DSP is input.
51	CL	I	Microprocessor command clock input pin.
52	DAT	I	Microprocessor command data input pin.
53	CE	I	Microprocessor command chip enable input pin.
54	DRF	O	“Detect RF” RF level detector output.
55	FSS	I	“Focus Search Select” focus search mode ( $\pm$ search/+ search) select pin.
56	VCC2	—	Servo system and digital system Vcc pin.
57	REFI	—	Pin to which external bypass capacitor for reference voltage is connected.
58	VR	O	Reference voltage output pin.
59	LF2	I	Disc defect detector time constant setting pin.
60	PH1	I	Pin to which external capacitor for RF signal peak holding is connected.
61	BH1	I	Pin to which external capacitor for RF signal bottom holding is connected.
62	LDD	O	APC circuit output pin.
63	LDS	I	APC circuit input pin.
64	VCC1	—	RF system Vcc pin.

# IC, LC78622E

Pin No.	Pin Name	I/O	Description	
1	DEFI	I	Defect sense signal (DEF) input pin. (Connect to 0V when not used).	
2	TAI	I	For PLL.	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.
3	PDO	O		Phase comparator output pin to control external VCO.
4	VVSS	—		GND pin for built-in VCO. Be sure to connect to 0V.
5	ISSET	I		Pin to which external resistor adjusting the PDO output current.
6	VVDD	—		Power supply pin for built-in VCO.
7	FR	I		Pin for VCO frequency range adjustment.
8	VSS	—	Digital system GND. Be sure to connect to 0V.	
9	EFMO	O	For slice level control.	EFM signal output pin.
10	EFMIN	I		EFM signal input pin.
11	TEST2	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.	
12, 13	CLV+, CLV–	O	Disc motor control output. Three level output is possible using command.	
14	V/P	O	Rough servo or phase control automatic selection monitoring output pin. Rough servo at H. Phase servo at L.	
15	HFL	I	Track detect signal input pin. Schmidt input.	
16	TES	I	Tracking error signal input pin. Schmidt input.	
17	TOFF	O	Tracking OFF output pin.	
18	TGL	O	Tracking gain selection output pin. Gain boost at L.	
19, 20	JP+, JP–	O	Track jump control signal output pin. Three level output is possible using command.	
21	PCK	O	EFM data playback clock monitoring pin 4.3218 MHz when phase is locked in.	
22	FSEQ	O	Sync signal detection output pin. H when the sync signal which is detected from EFM signal and the sync signal which is internally generated agree.	
23	VDD	—	Digital system power supply pin.	
24-28	SL+ - PUIN	I/O	General purpose input/output pin 1 to 5.	The pin is controlled by the serial data command from microprocessor. When the pin is not used, set the pin to the input terminal and connect to 0V, or alternately set the pin to output terminal and leave the pin open.
29	EMPH	O	De-emphasis monitor output pin. De-emphasis disc is being played back at H.	
30	C2F	O	C2 flag output pin.	
31	DOUT	O	DIGITAL OUT output pin. (EIAJ format).	
32, 33	TEST3, TEST4	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.	
34	N.C.	—	Not used. Set the pin to open.	
35	MUTEL	O	L-channel 1-bit DAC.	L-channel mute output pin.
36	LVDD	—		L-channel power supply pin.
37	LCHO	O		L-channel output pin.
38	LVSS	—		L-channel GND. Be sure to connect to 0V.
39	RVSS	—	R-channel 1-bit DAC.	R-channel GND. Be sure to connect to 0V.
40	RCHO	O		R-channel output pin.
41	RVDD	—		R-channel power supply pin.
42	MUTER	O		R-channel mute output pin.

Pin No.	Pin Name	I/O	Description
43	XVDD	—	Crystal oscillator power supply pin.
44	XOUT	O	Pin to which external 16.9344 MHz crystal oscillator is connected.
45	XIN	I	
46	XVSS	—	Crystal oscillator GND pin. Be sure to connect to 0V.
47	SBSY	O	Subcode block sync signal output pin.
48	EFLG	O	C1, C2, single and dual correction monitoring pin.
49	PW	O	Subcode P, Q, R, S, T, U and W output pin.
50	SFSY	O	Subcode frame sync signal output pin. Falls down when subcode enters standby.
51	SBCK	I	Subcode read clock input pin. Schmidt input. (Be sure to connected to 0V when not in use.)
52	FSX	O	Pin outputting the 7.35 kHz sync signal which is generated by dividing frequency of crystal oscillator.
53	WRQ	O	Subcode Q output standby output pin.
54	RWC	I	Read/write control input pin. Schmidt input.
55	SQOUT	O	Subcode Q output pin.
56	COIN	I	Command input pin from microprocessor.
57	$\overline{\text{CQCK}}$	I	Command input read clock or subcode read input clock from SQOUT pin
58	$\overline{\text{RES}}$	I	LC78622 reset input pin. Set this pin to L once when the main power is turned on.
59	TST11	O	Test signal output pin. Use this pin as open (normally L output).
60	16M	O	16.9344 MHz output pin.
61	4.2M	O	4.2336 MHz output pin.
62	TEST5	I	Test signal input pin with built-in pull-down resistor. Be sure to connect to 0V.
63	$\overline{\text{CS}}$	I	Chip select signal input pin with built-in pull-down resistor. Be sure to connect to 0V while it is not controlling.
64	TEST1	I	Test signal input pin without built-in pull-down resistor. Be sure to connect to 0V.

**Note:** The same potential must be applied to the respective power supply terminals. (VDD, VVDD, LVDD, RVDD, XVDD)

# IC, CXD2652AR

Pin No.	Pin Name	I/O	Description
1	MNT0	O	Monitor output terminal.
2	MNT1	O	Monitor output terminal.
3	MNT2	O	Monitor output terminal.
4	MNT3	O	Monitor output terminal.
5	SWDT	I	Microprocessor serial interface data input.
6	SCLK	I	Microprocessor serial interface shift clock input.
7	XLAT	I	Microprocessor serial interface latch input. Latched at falling down edge.
8	SRDT	O	Microprocessor serial interface data output.
9	SENS	O	The terminal which outputs internal status in accordance with the address of the microprocessor serial interface.
10	XRST	I	Reset input. L: reset.
11	SQSY	O	Disc sub code Q sync/ADIP sync output.
12	DQSY	O	Subcode Q sync output of U-bit CD or MD format when the DIGITAL IN source is CD or MD.
13	RECP	I	Laser power selection input. H: Recording power, L: Playback power.
14	XINT	O	Interrupt request output terminal. L is output when interrupt status is generated.
15	TX	I	Record data output enable signal input terminal. H: enable.
16	OSCI	I	Crystal oscillator circuit input terminal.
17	OSCO	O	Crystal oscillator circuit output terminal. (Inverted output of OSCI).
18	XTSL	I	OSCI terminal input frequency selection. H: 512 Fs (22.5792 MHz), L: 1024 Fs (45.1584 MHz).
19	NC	—	Not connected.
20	DVSS	—	Digital GND.
21	DIN	I	Digital audio interface signal input.
22	DOUT	O	Digital audio interface signal output.
23	ADDT	I	Analog recording signal input terminal. (External A/D converter output is connected to this terminal).
24	DADT	O	RECORD monitor output/decode audio data output.
25	LRCK	O	LRCK (44.1 kHz) output terminal to external audio block.
26	XBCK	O	Bit clock output (2.8224 kHz) output terminal to external audio block.
27	FS256	O	256 Fs output. (11.2896 MHz).
28	DVDD	—	Digital power supply.
29	A03	O	Address output to external DRAM.
30	A02	O	Address output to external DRAM.
31	A01	O	Address output to external DRAM.
32	A00	O	Address output to external DRAM.
33	A10	O	Address output to external DRAM. (Not used).
34	A04	O	Address output to external DRAM.
35	A05	O	Address output to external DRAM.
36	A06	O	Address output to external DRAM.
37	A07	O	Address output to external DRAM.

Pin No.	Pin Name	I/O	Description
38	A08	O	Address output to external DRAM.
39	A11	O	Address output to external DRAM. (Not used).
40	DVSS	—	Digital GND.
41	XOE	O	External DRAM output enable.
42	XCAS	O	CAS output to external DRAM.
43	A09	O	Address output to external DRAM.
44	XRAS	O	RAS output to external DRAM.
45	XWE	O	Write enable for external DRAM.
46	D1	I/O	Data bus for external DRAM.
47	D0	I/O	Data bus for external DRAM.
48	D2	I/O	Data bus for external DRAM.
49	D3	I/O	Data bus for external DRAM.
50	MVCI	I	External VCO (784 fs) clock input.
51	ASYO	O	Playback EFM full swing output. (L: VSS, H: VDD).
52	ASYI	I	Playback EFM comparator slice voltage input.
53	AVDD	—	Analog GND.
54	BIAS	I	Playback EFM comparator bias current input.
55	RFI	I	Playback EFM RF signal input.
56	AVss	—	Analog power supply.
57	PDO	O	Phase comparison output to EFM decoder analog PLL.
58	PCO	O	Phase comparison output to the master PLL of playback digital PLL and to the recording EFM PLL.
59	FILI	I	Filter input to the master PLL of playback digital PLL and to the recording EFM PLL.
60	FILO	O	Filter output to the master PLL of playback digital PLL and to the recording EFM PLL.
61	CLTV	I	Internal VCO control voltage of the master PLL of playback digital PLL and of the recording EFM PLL.
62	PEAK	I	Optical light volume's peak hold signal input.
63	BOTM	I	Optical light volume's bottom hold signal input.
64	ABCD	I	Optical light volume signal input.
65	FE	I	Focus error signal input.
66	AUX1	I	Auxiliary input 1.
67	VC	I	Center terminal voltage input.
68	ADIO	O	Monitor output of A/D converter input signal.
69	AVDD	—	Analog power supply.
70	ADRT	I	Voltage input of the upper limit of the A/D converter operation range.
71	ADRB	I	Voltage input of the lower limit of the A/D converter operation range.
72	AVSS	—	Analog GND.
73	SE	I	Sled error signal input.
74	TE	I	Tracking error signal input.
75	AUX2	I	Auxiliary input 2.



Pin No.	Pin Name	I/O	Description
76	DCHG	I	Connected to the low impedance power supply.
77	APC	I	Error signal input to the laser digital APC.
78	ADFG	I	ADIP2 binary-converted FM signal (22.05±1 kHz) input.
79	FOCNT	O	Current source setting output terminal to CXA2523.
80	XLRF	O	Latch output for CXA2523 control. Latched at rise-up.
81	CKRF	O	Shift clock output for CXA2523 control.
82	DTRF	O	Data output for CXA2523 control.
83	APCREF	O	Reference PWM output to laser APC.
84	LDDR	O	PWM output to laser digital APC. (Not used).
85	TRDR	O	Tracking servo drive PWM output. (-).
86	TFDR	O	Tracking servo drive PWM output. (+).
87	DVDD	—	Digital power supply.
88	FFDR	O	Focus servo drive PWM output. (+).
89	FRDR	O	Focus servo drive PWM output. (-).
90	FS4	O	4 fs output. (176.4 kHz).
91	SRDR	O	Sled servo drive PWM output. (-).
92	SFDR	O	Sled servo drive PWM output. (+).
93	SPRD	O	Spindle servo drive PWM output. (PWM (-) or negative polarity).
94	SPFD	O	Spindle servo drive PWM output. (PWM (+) or PWM absolute value).
95	FGIN	I	FG input to spindle CAV servo.
96	TEST1	I	Test pin. Connected to GND.
97	TEST2	I	Test pin. Connected to GND.
98	TEST3	I	Test pin. Connected to GND.
99	DVSS	—	Digital GND.
100	EFMO	O	Low signal during playback. EFM (encode data) output: during recording.

# IC, CXP81952

Pin No.	Pin Name	I/O	Description
1	MCAS	—	Not used.
2	MRAS	—	
3	BUP	—	
4	AMUTE	O	Audio mute signal output.
5	ESK	O	Serial clock output for EEPROM interface.
6	EDO	O	Serial data output for EEPROM interface.
7	EDI	I	Serial data input for EEPROM interface.
8	ECS	O	EEPROM interface chip select signal output.
9	—	—	Not used.
10	RFLCT	I	DISC reflectance factor detection switch input.
11	—	—	Not used.
12	LS	I	Optical pickup inner circumference detection switch input.
13	LDSW	I	Loading mechanism, EJECT position detection switch input.
14	PBSW	I	Loading mechanism, PB position detection switch input.
15	RECSW	I	Loading mechanism, RECORD position detection switch input.
16	—	—	Not used.
17	—	—	
18	ACOFF	—	
19	SREQ	I	System control send request signal input for system control interface.
20	EXTDIN	O	External DIGITAL-IN enable signal output.
21	SLOW	O	Loading mechanism speed control signal input.
22	LOAD	O	Loading mechanism operational direction control signal input 1.
23	EJECT	O	Loading mechanism operational direction control signal input 2.
24	MREQ	O	MD microprocessor send request signal output for system control interface.
25	DRIVE	O	EFM driver ON/OFF signal output.
26	—	—	Not used.
27	—	—	
28	—	—	
29	—	—	
30	—	—	
31	—	—	
32	—	—	
33	—	—	
34	—	—	
35	—	—	
36	—	—	
37	MP	—	Connected to VSS.
38	SRST	I	MD microprocessor reset signal input.
39	DGND	—	Connected to VSS.
40	XTALO	O	External system clock oscillation crystal connection terminal 1.
41	XTALI	I	External system clock oscillation crystal connection terminal 2.

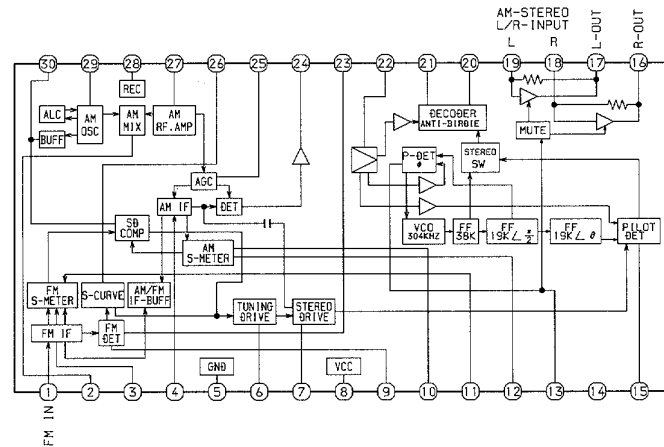
Pin No.	Pin Name	I/O	Description
42	ARDY	I	Ready signal input for system control interface.
43	SIN	I	Serial data input for system control interface.
44	SOUT	O	Serial data output for system control interface.
45	ACLK	O	Serial clock output for system control interface.
46	XLAT	O	CXD2652 interface latch signal output.
47	XRST	O	CXD2652 reset signal output.
48	XSTBY	O	CXA2523 standby signal output.
49	—	—	Not used.
50	AVSS	—	Connected to VSS.
51	AVREF	—	Connected to VDD.
52	AVDD	—	
53	—	—	
54	—	—	Not used. (PLL UP)
55	—	—	
56	SLF	—	
57	SRF	—	
58	TEMP	—	
59	MAGIC	—	
60	—	—	
61	TEST	—	
62	DISCPRO	I	DISC write-protection switch input.
63	MNT3	I	CXD2652 monitor signal input 3.
64	MNT2	I	CXD2652 monitor signal input 2.
65	MNT1	I	CXD2652 monitor signal input 1.
66	MNT0	I	CXD2652 monitor signal input 0.
67	SENS	I	CXD2652 SENS signal input.
68	FLG	I	The terminal monitoring the flag included in the SRDT of the CXD2652 interface.
69	—	—	Not used.
70	—	—	
71	P-CONT	—	
72	RFSW	—	
73	—	—	
74	—	—	
75	DQSY	I	DIGITAL-IN SUB-Q sync input.
76	XINT	I	CXD2652 status sync input.
77	SRDT	I	CXD2652 interface serial data input.
78	SWDT	O	CXD2652 interface serial data output.
79	SCLK	O	CXD2652 interface serial clock output.
80	SQSY	I	SUB-Q, ADIP sync input.
81	—	—	Not used.
82	—	—	

Pin No.	Pin Name	I/O	Description
83	—	—	Not used.
84	TXI	—	Connected to VSS.
85	TXO	—	Open. (Not used)
86	VSS	—	Connected to VSS.
87	VDD	—	Connected to VDD.
88	NC	—	
89	—	—	Not used.
90	DRVMUTE	O	BA5970FP mute signal output.
91	—	—	Not used.
92	—	—	
93	—	—	
94	—	—	
95	RECP	O	Laser power selection signal output.
96	TX	O	Record data output enable signal output.
97	MOD	O	RF modulation circuit ON/OFF signal output.
98	OPMUTE	O	Laser mute signal output.
99	ARST	O	AK4512 reset signal output.
100	DENF	O	De-emphasis ON/OFF signal output.

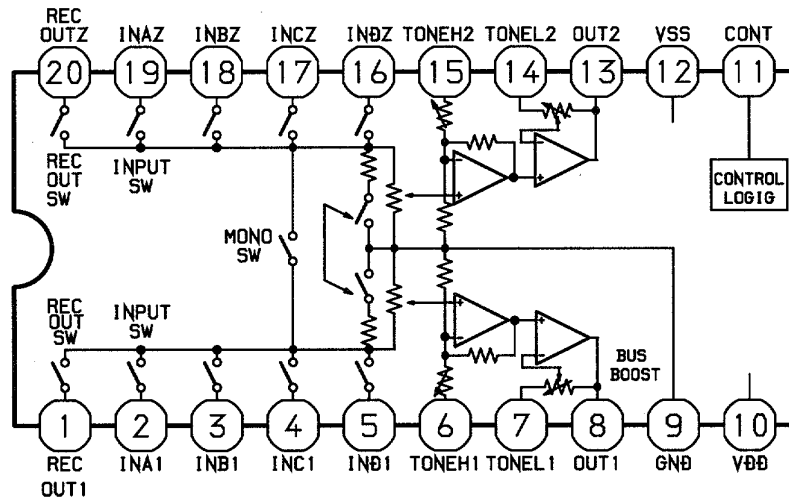
# IC, LC72131

Pin No.	Pin Name	I/O	Description																											
1	XI	—	Crystal oscillator (6.2 MHz) is connected to this pin.																											
2	NC	—	Not used.																											
3	CE	I	The terminal which enables this IC. Active H.																											
4	DI	I	Data from the CPU (LC866432V) is input when this key is operated. Active H.																											
5	CLK	I	Clock input to data DI.																											
6	DO	O	Digital data output to the CPU (LC866432V)																											
7	TM-BASE	O	Reference clock signal input (8 MHz).																											
8	MONO/ST BEAT	O	H is output when the MONO/ST BEAT switch is operated.																											
9	FM/SW1	O	H or L is output as follows. <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="4">4 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>LW</td><td>SW1</td><td>SW2</td><td>FM</td></tr><tr><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td></tr></table>	2 BAND		3 BAND			4 BAND				AM	FM	LW	MW	FM	LW	SW1	SW2	FM	H	L	H	H	L	H	L	H	L
2 BAND		3 BAND			4 BAND																									
AM	FM	LW	MW	FM	LW	SW1	SW2	FM																						
H	L	H	H	L	H	L	H	L																						
10	MW/SW2	O	H or L is output as follows. <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="4">4 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>LW</td><td>SW1</td><td>SW2</td><td>FM</td></tr><tr><td>H</td><td>L</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td></tr></table>	2 BAND		3 BAND			4 BAND				AM	FM	LW	MW	FM	LW	SW1	SW2	FM	H	L	H	L	L	H	H	L	L
2 BAND		3 BAND			4 BAND																									
AM	FM	LW	MW	FM	LW	SW1	SW2	FM																						
H	L	H	L	L	H	H	L	L																						
11	IF-MUTE	O	This pin controls the internal counter.																											
12	IFIN	I	General purpose counter input.																											
13	TUNE	I	L is input when tuned to a station.																											
14	NC	—	Not used.																											
15	AM-I	I	AM local oscillator frequency signal is input.																											
16	FM-I	I	FM local oscillator frequency signal is input.																											
17	VDD	—	Power supply input to IC (+5 V).																											
18	PD	O	PLL charge-pump output.																											
19	AIN	I	N-channel MOS transistor for PLL active low-pass filter.																											
20	AOUT	O	N-channel MOS transistor for PLL active low-pass filter.																											
21	VSS	—	GND.																											
22	XO	—	Crystal oscillator (6.2 MHz) is connected to this pin.																											

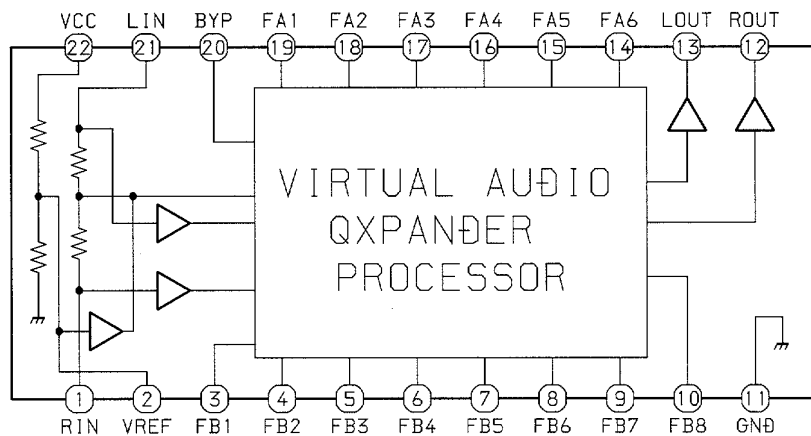
IC BLOCK DIAGRAM.  
IC, LA1837



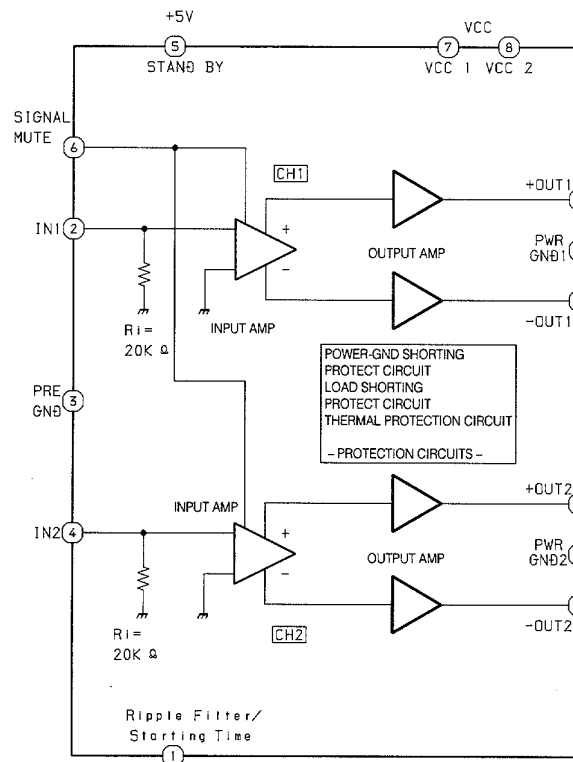
IC, M62439SP



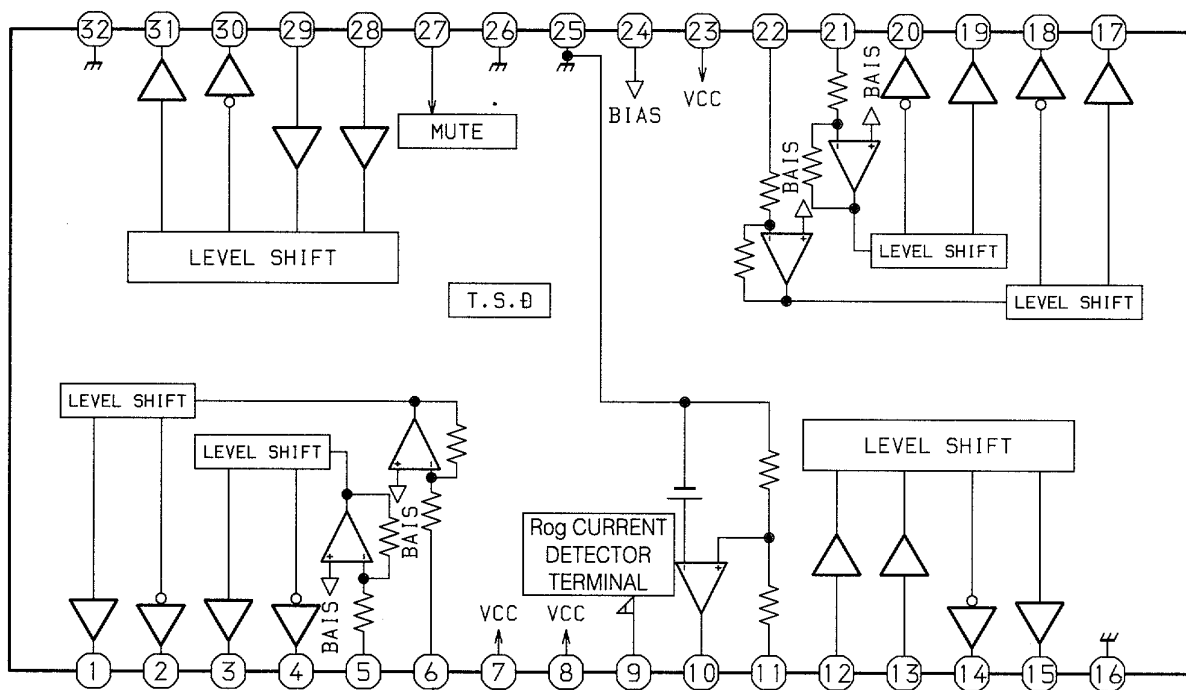
IC, MM1354BD



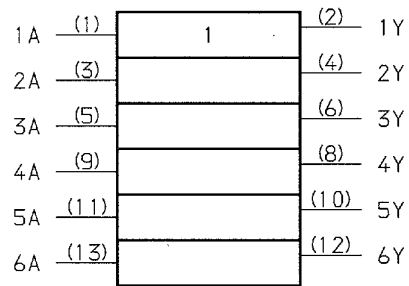
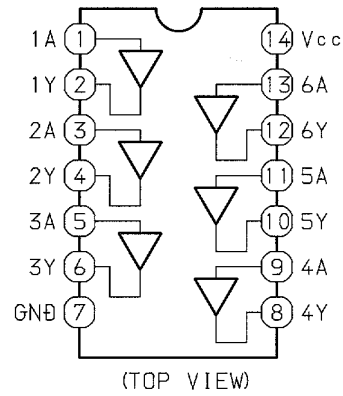
## IC, LA4663



## IC, BA5936

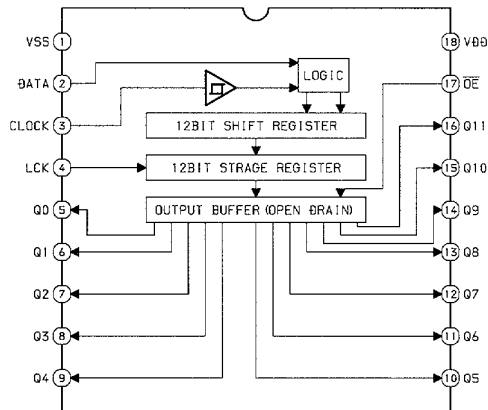


## IC, TC74HCT7007AF

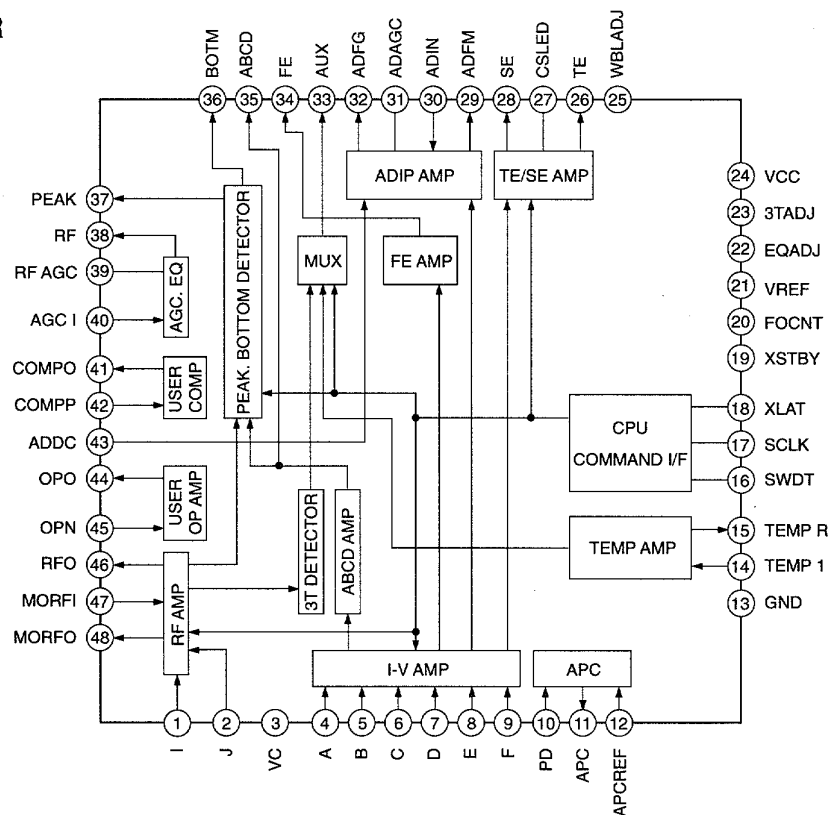


A	Y
L	L
H	H

## IC, BU2092F

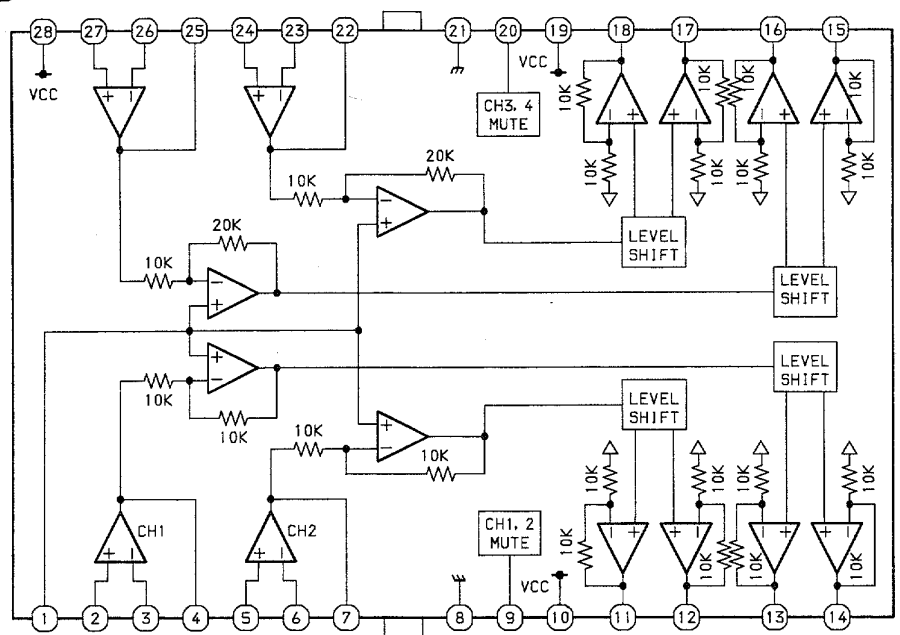


## IC, CXA2523AR

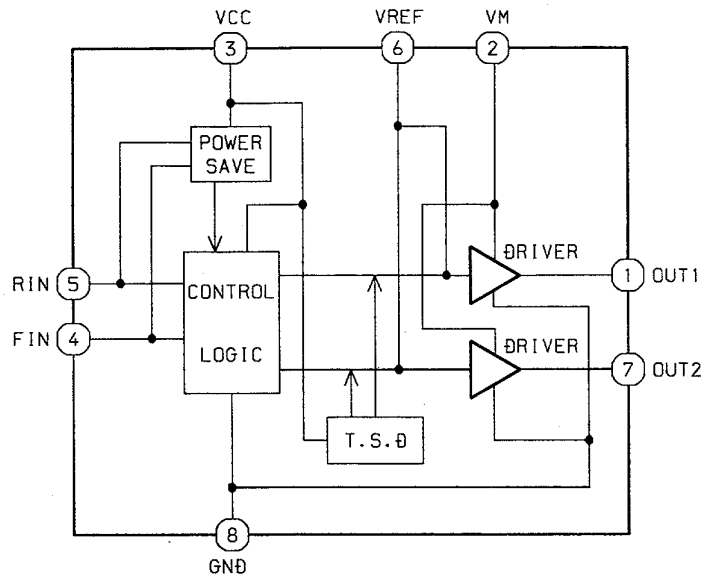




IC, BA5970FP

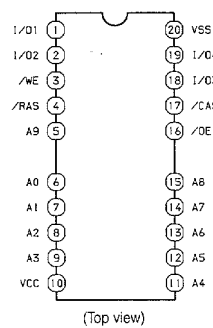


IC, BA6417F



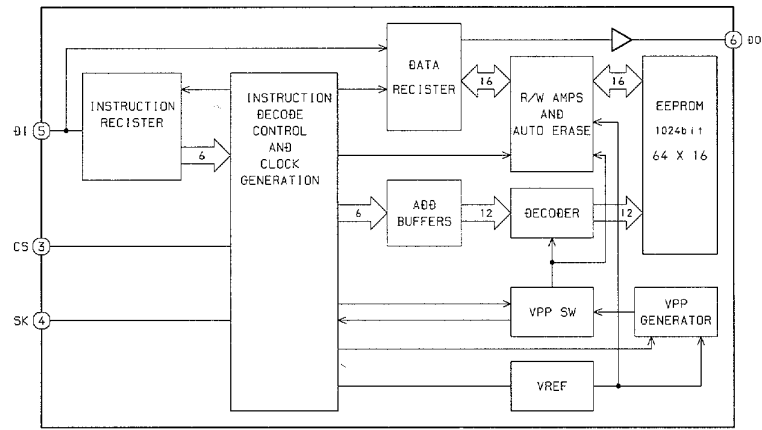
IC, HM51W4400BS

Pin No.	Signal name
1	Power supply/Clock
2	1/01
3	1/02
4	/WE
5	/RAS
6	A9
7	A8
8	A7
9	A6
10	A5
11	A4
12	A3
13	A2
14	A1
15	A0
16	/OE
17	/CAS
18	1/03
19	1/04
20	VSS

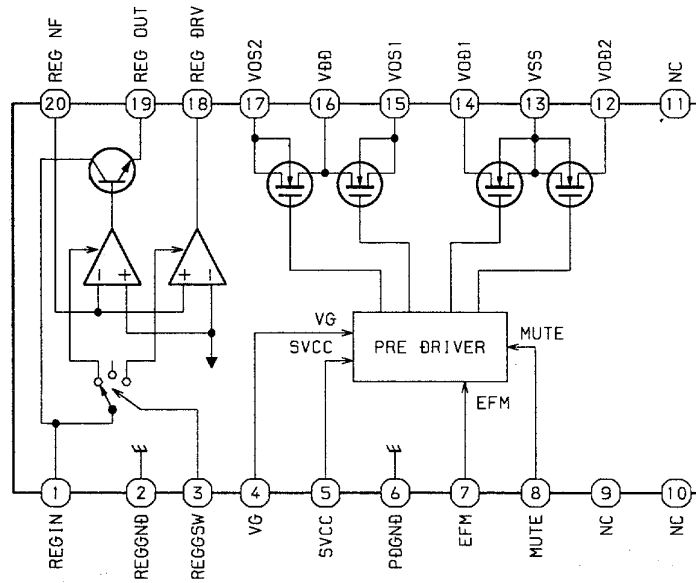


(Top view)

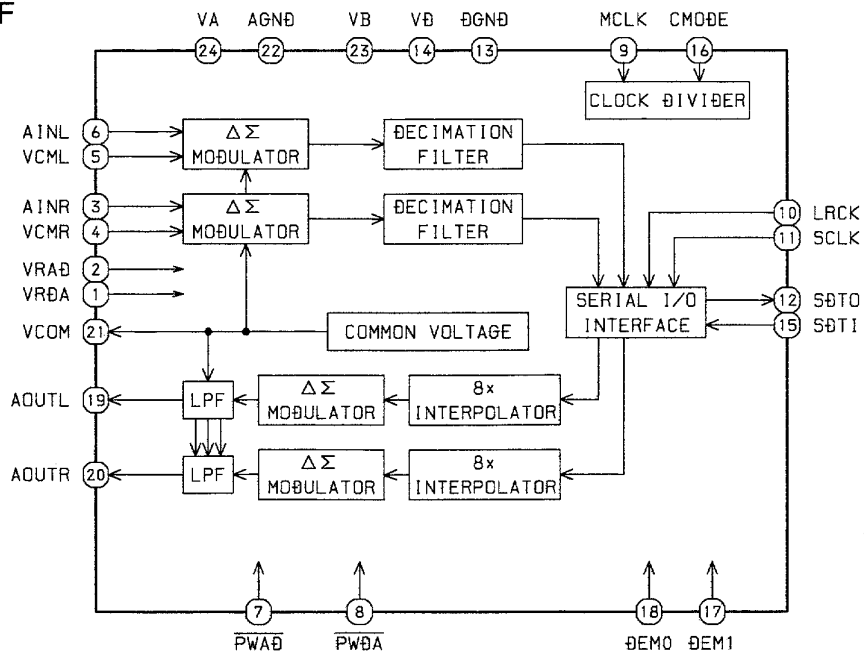
## IC, AK93C45AF



## IC, BD7910FV



## IC, AK4512VF



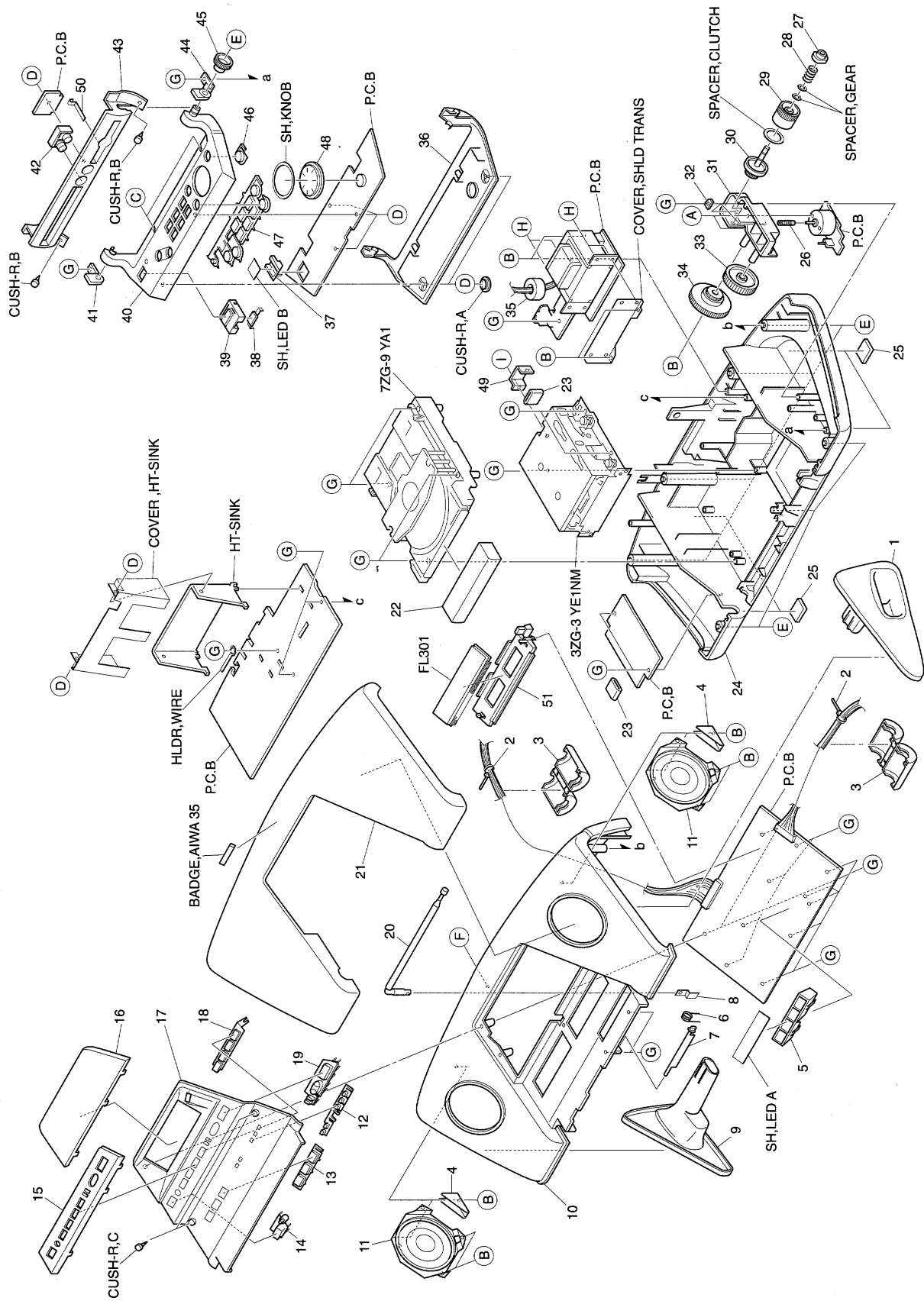
## MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

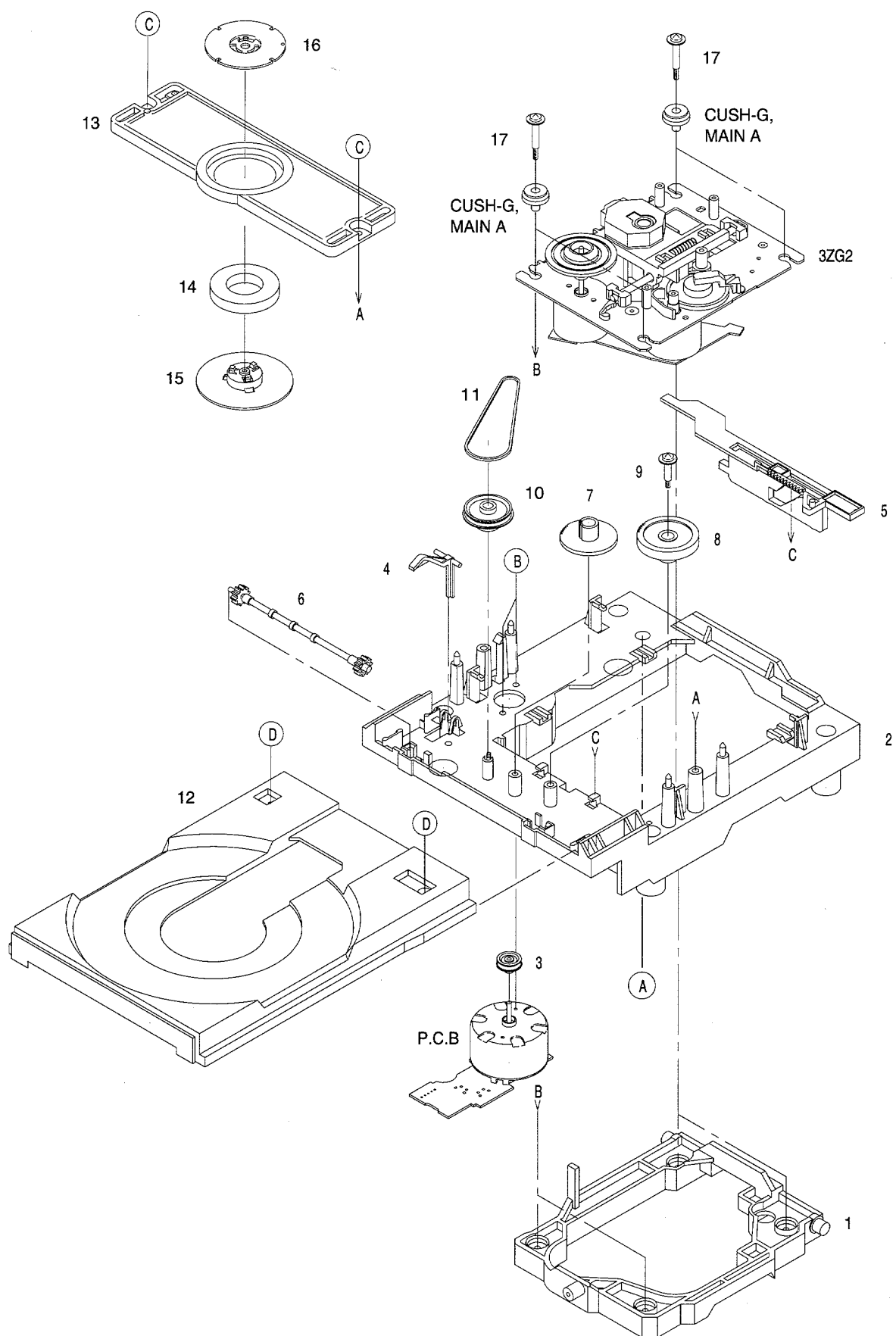
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1	88-CD2-009-010		PANEL, SIDE L	31	88-CD2-221-010		HLDR, GEAR A
2	87-A90-193-010		HLDR, CV100 (B)	32	88-CD2-222-010		HLDR, GEAR B
3	87-A90-908-010		F-BEAD, E1314MRC	33	88-CD2-206-010		GEAR, A
4	88-CD2-230-010		HLDR, SPKR	34	88-CD2-207-010		GEAR, B
5	88-CD2-202-010		HLDR, LED A	35	87-003-317-010		F-BEAD, F0H2515-LG7
6	88-CD2-227-010		SPR-T, FLAP	36	88-CD2-008-010		PANEL, CONT B
7	88-CD2-011-010		LID, MD	37	88-CD2-203-010		HLDR, LED B
8	88-CD2-219-010		SPR-P, ANT	38	88-CD2-022-010		LENS, DUBBING
9	88-CD2-010-010		PANEL, SIDE R	39	88-CD2-021-010		KEY, DUBBING
10	88-CD2-001-010		CABI, TOP	40	88-CD2-039-010		PANEL, CONT A EX
11	88-CD2-602-110		SPKR, F 8CM 60HM	41	88-CD2-228-010		HLDR, PANEL L
12	88-CD2-017-010		KEY, TIMER	42	88-CD2-018-010		KEY, EJECT
13	88-CD2-016-010		KEY, EQ	43	88-CD2-038-010		PANEL, FRONT EX
14	88-CD2-040-010		KEY, POWER EX	44	88-CD2-223-010		HLDR, PANEL
15	88-CD2-037-010		PANEL, TOP B EX	45	88-CD2-229-010		GEAR, E
16	88-CD2-006-010		WINDOW, DISP	46	88-CD2-043-010		KEY, MD CONT B EX
17	88-CD2-036-010		PANEL, TOP A EX	47	88-CD2-042-010		KEY, MD CONT A EX
18	88-CD2-041-010		KEY, FUNC EX	48	88-CD2-023-010		KNOB, RTRY JOG
19	88-CD2-046-010		KEY, VOL EX	49	88-CD2-241-010		HLDR, CORE
20	87-043-116-010		ANT, WHIP	50	88-CD2-243-010		SPR-P, STOPPER
21	88-CD2-026-010		FRAME, SPKR ASSY	51	88-CD2-201-010		HLDR, VFD
22	88-CD2-024-010		PANEL, CD	A	87-261-071-410		V+2.6-4
23	86-CD0-628-010		F-BEAD, 18.8-1.1-15 H	B	87-761-097-410		VFT2+3-10 GLD
24	88-CD2-002-110		CABI, BOTTOM	C	87-721-096-410		QT2+3-10 GLD
25	88-CD2-027-010		CUSH, FOOT	D	87-067-584-010		TAPPING SCREW, BVT2+3-6
26	88-CD2-205-010		GEAR, MOTOR	E	87-067-698-010		BVT2+3-18 (W/O, SLOT)
27	88-CD2-204-010		HLDR, SPRING	F	87-493-097-410		VWWS+3-12 BLACK
28	88-CD2-211-010		SPR-C, CLUTCH	G	87-067-703-010		TAPPING SCREW, BVT2+3-10
29	88-CD2-209-010		GEAR, D	H	87-067-566-010		TAPPING SCREW, VFTT+3-6
30	88-CD2-208-010		GEAR, C	I	87-067-020-010		SCREW, VTT+3-4

## COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
N	Gold	P	Pink	R	Red
S	Silver	ST	Titan Silver	T	Brown
V	Violet	W	White	Y	Yellow



# CD MECHANISM EXPLODED VIEW 1/2

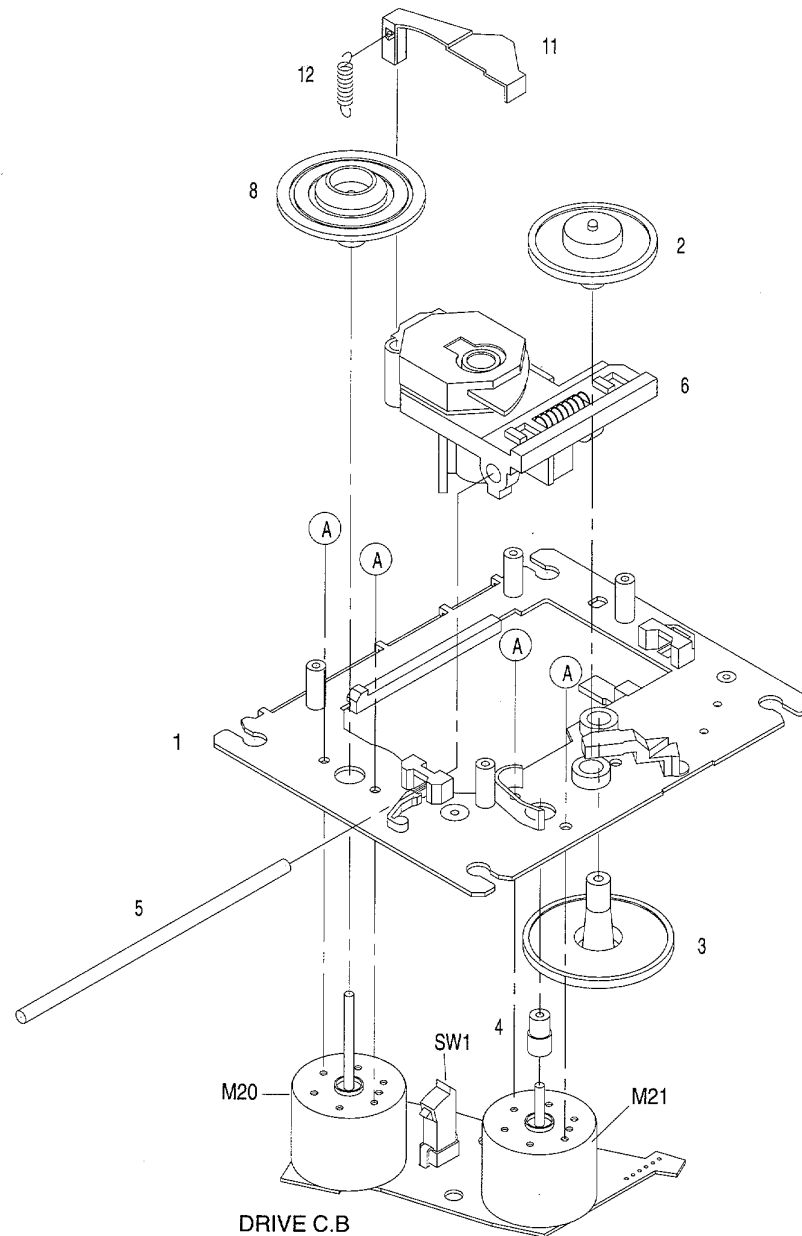


## CD MECHANISM PARTS LIST 1/2

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG3-224-310		HLDR, M2	16	83-ZG3-219-010		PLATE, CLAMP
2	83-ZG3-228-610		CHAS, L6	17	81-ZG1-254-010		S-SCEW, MECH HLDR
3	83-ZG3-208-010		PULLEY, MOTOR	A	87-067-945-110		VFT2+3-12 (F10)
4	83-ZG3-213-010		LVR, SW	B	87-251-071-110		U+2.6-4
5	83-ZG3-209-610		CAM, SLIDE	C	87-512-074-210		VFT2+2.6-8
6	83-ZG3-207-010		GEAR, TRAY	D	87-352-075-210		VT2+2.6-10
7	83-ZG3-204-210		GEAR, C				
8	83-ZG3-205-010		GEAR, D				
9	83-ZG3-217-010		S-SCREW, GEAR D				
10	83-ZG3-220-210		GEAR, PULLEY 2				
11	83-ZG3-214-010		BELT, L				
12	83-ZG3-229-410		TRAY, CD 2				
13	83-ZG3-230-010		HLDR, CHUCK 2				
14	83-ZG3-602-010		RING, MAG				
15	83-ZG3-212-010		CAP, DISC				

## CD MECHANISM EXPLODED VIEW 2/2

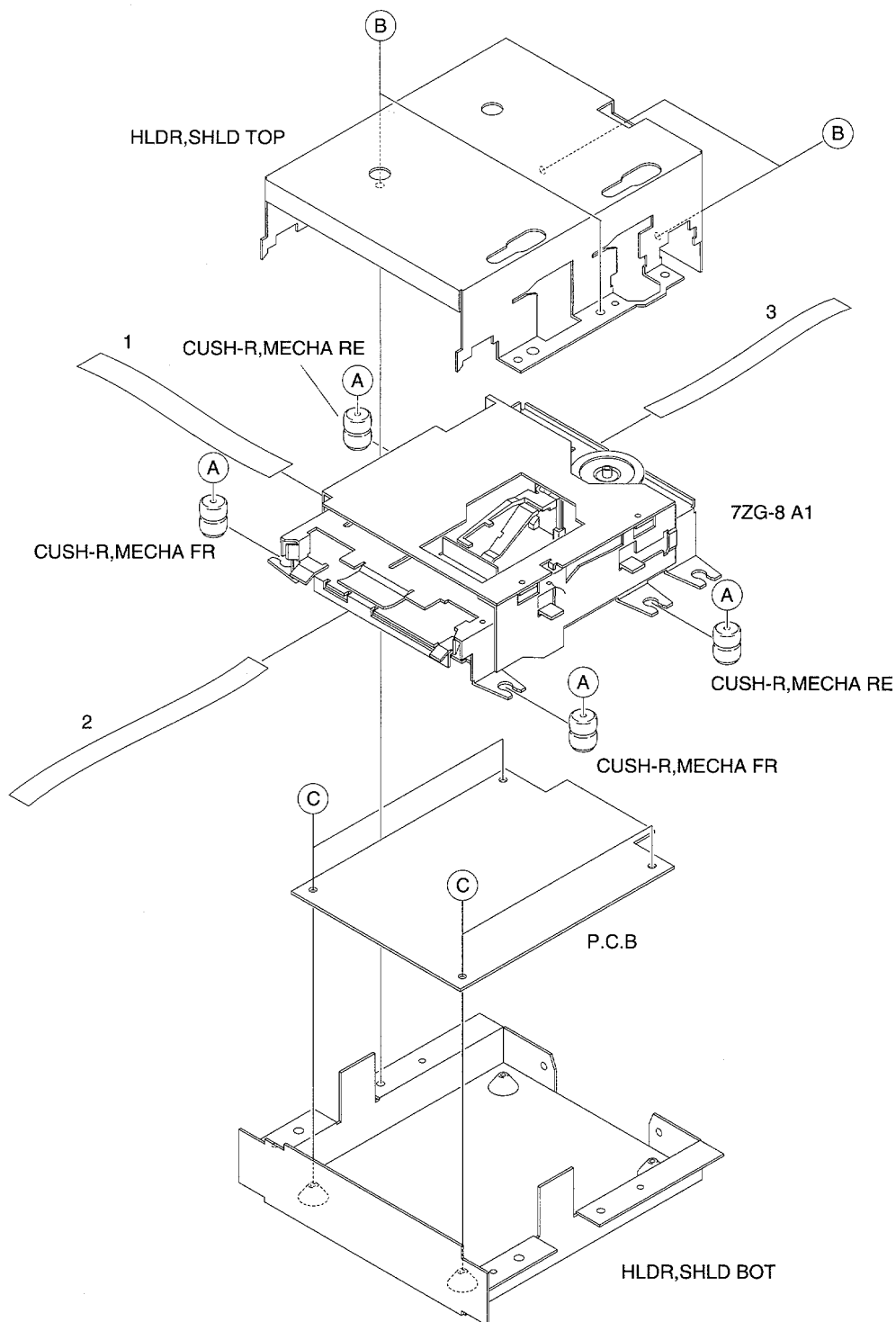


## CD MECHANISM PARTS LIST 2/2

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG2-243-110		CHAS ASSY, SHT
2	83-ZG2-235-010		GEAR, A3
3	83-ZG2-205-210		GEAR, B
4	83-ZG2-236-010		GEAR MOTOR 3
5	83-ZG2-240-010		SHAFT, SLIDE 3
6	87-A90-836-010		PICKUP, KSS-213F
8	83-ZG2-233-010		TURN TABLE, A5
11	83-ZG2-245-110		LEVER, SHUTTER
12	83-ZG2-250-010		SPR-E, SHT 2
A	87-261-032-210		SCREW V+2-3

## MD MECHANISM EXPLODED VIEW 1/3



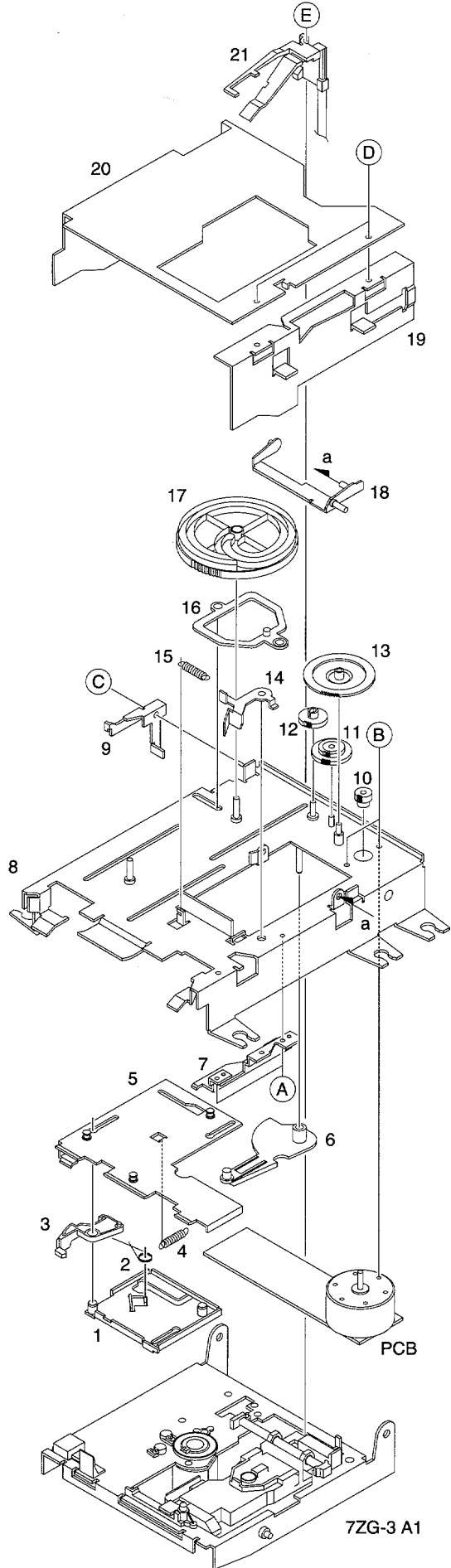
## MD MECHANISM PARTS LIST 1/3

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG9-602-010		FF-CABLE, 21P 0.5 90MM
2	87-ZG9-603-010		FF-CABLE, 8P 1.0 120MM
3	87-ZG9-604-010		FF-CABLE, 5P 1.25 100MM
A	87-ZG9-206-010		S-SCREW, MD
B	87-067-688-010		BVTT+3-6
C	87-067-421-010		VTT+2-4



MD MECHANISM EXPLODED VIEW 2/3

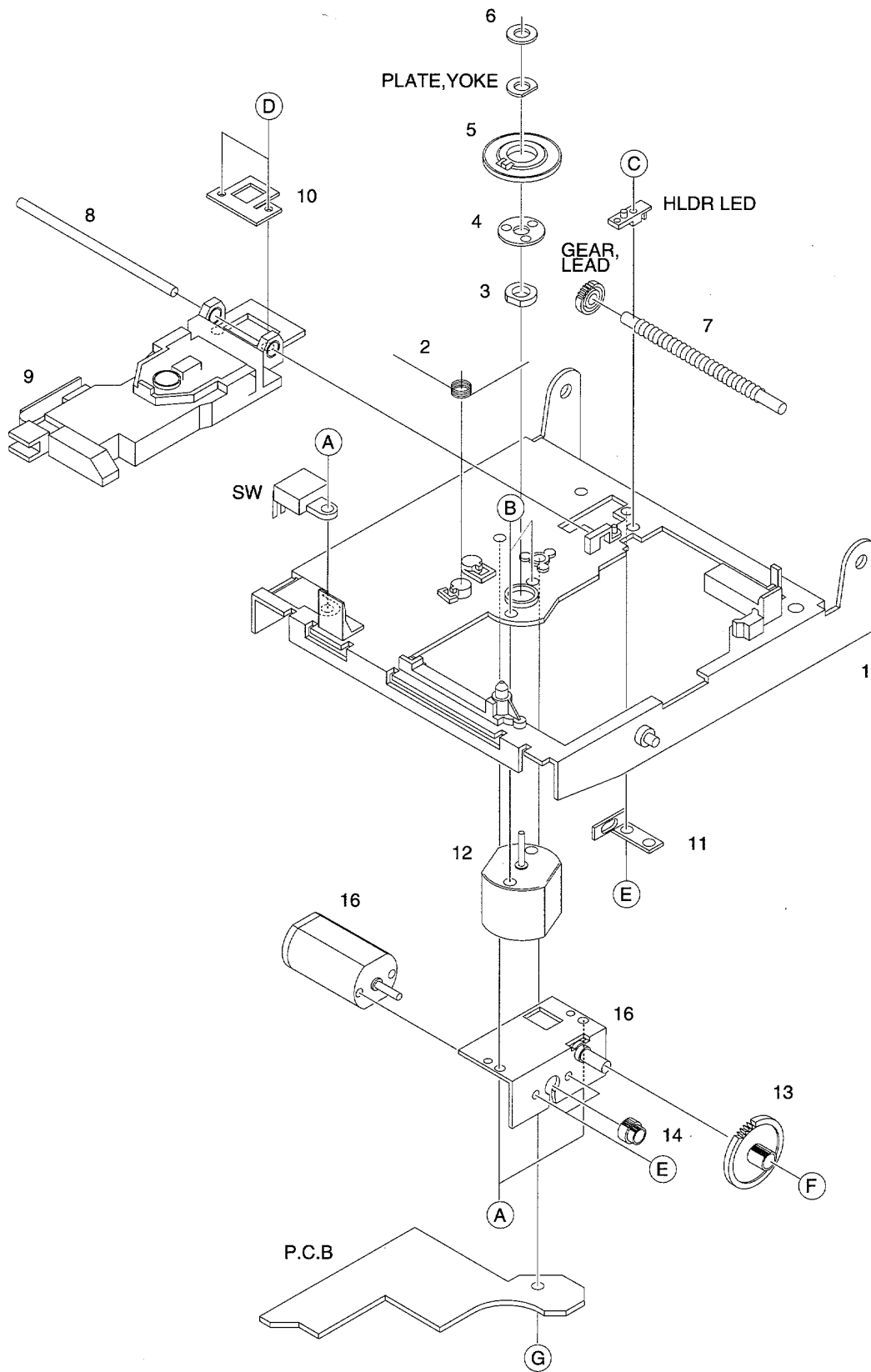


## MD MECHANISM PARTS LIST 2/3

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG8-220-110		PLATE ASSY, LATCH	16	87-ZG8-225-110		LEVER ASSY, CAM
2	87-ZG8-259-010		SPR-T, LATCH	17	87-ZG8-239-010		CAM, LOAD
3	87-ZG8-230-110		LEVER, LATCH	18	87-ZG8-257-110		LEVER ASSY, REC
4	87-ZG8-224-110		SPR-E, LATCH	19	87-ZG8-213-010		PLATE, SLIDE R
5	87-ZG8-214-110		HLDR ASSY, CARTRIGE	20	87-ZG8-209-010		PLATE ASSY, SLIDE L
6	87-ZG8-233-010		LEVER, SW H	21	87-A90-605-010		HEAD, OWH RF325-74A
7	87-ZG8-255-110		PLATE, CARTRIGE	A	87-B10-129-010		VTT+1.7-3.5 W/O MFZN2-C
8	87-ZG8-201-210		CHAS ASSY, MAIN	B	87-B10-128-010		V+1.7-2 W/O MFZN2-C
9	87-ZG8-256-010		LEVER, SW S2	C	87-B10-130-010		W-P, 1.23-3.1-0.25 SLIT
10	87-ZG8-242-010		GEAR, MOT	D	87-067-421-010		VTT+2-4
11	87-ZG8-253-010		GEAR, REDUCTION S3	E	87-B10-131-010		VW+1.7-5 W/O MFZN2C
12	87-ZG8-246-010		GEAR, IDLER 2				
13	87-ZG8-252-010		GEAR, REDUCTION L3				
14	87-ZG8-231-010		LEVER, SHUTTER				
15	87-ZG8-232-010		SPR-E, SHUTTER				

# MD MECHANISM EXPLODED VIEW 3/3



## MD MECHANISM PARTS LIST 3/3

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG3-202-010		CHAS ASSY,OUT-SERT	16	87-A90-616-010		MOT,FF-N30VA
2	87-ZG3-214-010		SPR-T,SPINDLE-A	A	87-261-547-310		V+2-3 BLK (1)
3	83-ZG5-308-010		BRG,1.5-2	B	87-263-523-310		SCREW, V+1.7-2
4	83-ZG5-305-010		SPR-P,DISC	C	87-261-509-310		SCREW, V+1.4-4
5	83-ZG5-302-010		TURN TABLE,MD1	D	87-067-393-010		SCREW +1.4-1.4
6	83-ZG5-605-010		MAGNET,CHUCK	E	87-261-503-310		PRECISION SCREW, V+1.4-2
7	87-ZG3-212-010		SHAFT,LEAD	F	87-078-033-010		FW 1.2-2.5-0.25 SLT
8	87-ZG3-211-010		SHAFT,GUIDE	G	87-341-035-210		SCREW,UT1+2-6
9	87-A90-613-010		PICKUP,KMS-260A				
10	87-ZG3-216-010		SPR-P,RACK				
11	87-ZG3-213-010		SPR-P,LEAD				
12	87-A90-413-010		MOT,FF-110PH 9				
13	87-ZG3-206-010		GEAR,A				
14	87-ZG3-205-010		GEAR,MOT SL				
15	87-ZG3-208-010		HLDR ASSY,MOTOR				

## REFERENCE NAME LIST

### ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

### MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

**アイワ株式会社**  
**AIWA CO.,LTD.**

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Tokyo Japan